MICAL
RARY

APR 27 1931

State Associations and Other Organizations Entitled to Representation Should Not Overlook the Appointment of Delegates to the House of Delegates, A. Ph. A., the Conference of Pharmaceutical Secretaries and Conference of Pharmaceutical Law Enforcement Officials—Miami, Fla., during Week of July 27th.

Vol. XX, No. 4 APRIL, 1931

JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

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THE 79th ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN MIAMI, FLA., DURING WEEK OF JULY 27th. HEADQUARTERS, COLUMBUS HOTEL. LOCAL SECRETARY, G. H. GROMMET, 2364 S. W. 11th ST., MIAMI.

The 1931 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conferences of Pharmaceutical Association Secretaries and of Pharmaceutical Law Enforcement Officials will also be held at Miami, same time and place. The Plant Science Seminar will be held at Gainesville, Fla., during the week of July 21st.

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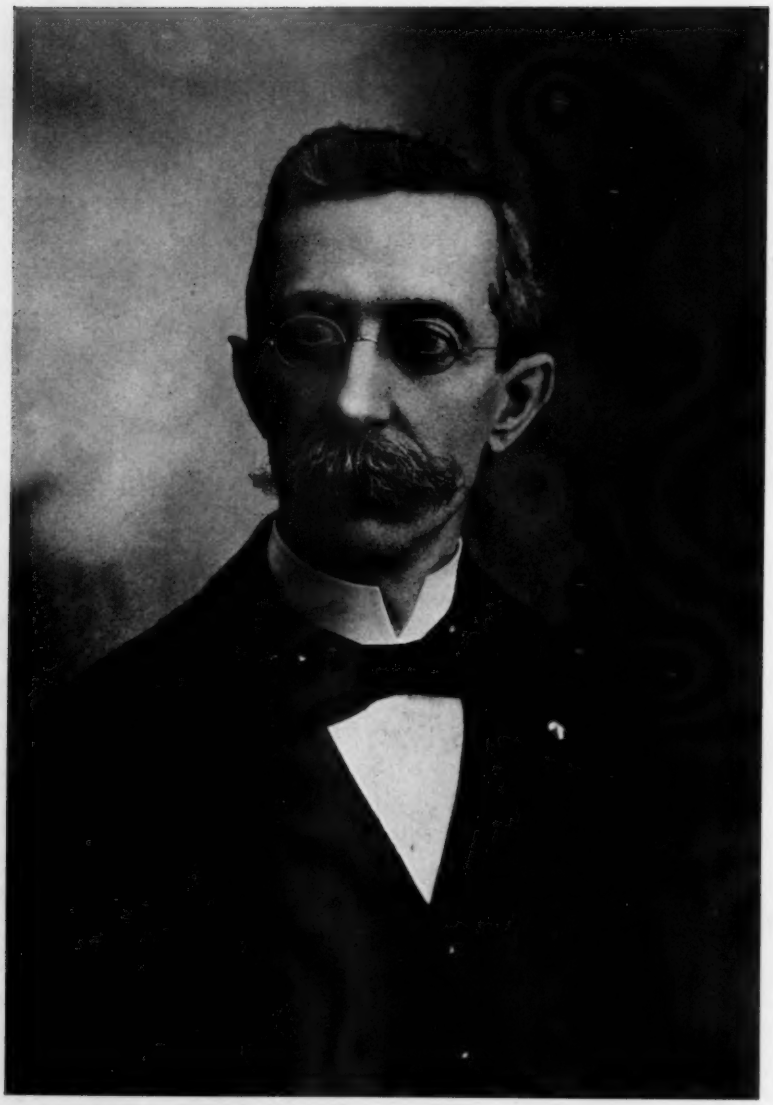
THE APPROACHING AMERICAN PHARMACEUTICAL ASSOCIATION CONVENTION.

A CIRCULAR letter has been issued to Florida pharmacists relative to the coming meeting of the A. PH. A., from which we quote in part: "From July 27 to 31, inclusive, 1931, Florida pharmacists will welcome to this State the most distinguished members of their profession, and for the greater part of two weeks will have the opportunity to show them the beauty and advantages of our commonwealth.

"The AMERICAN PHARMACEUTICAL ASSOCIATION has selected, for the first time in its history, a southeastern state as its meeting place in 1931. That we appreciate this honor and its opportunities, will be seen by the program already outlined for the entertainment of the hundreds of guests. However, this Convention will not be all entertainment; for, perhaps, more than any other nation-wide organization, the AMERICAN PHARMACEUTICAL ASSOCIATION gathers in annual convention for work, instruction and inspiration. This ASSOCIATION will draw to the state representatives from every state in the Union and they will come to us through every entrance. Those from the West and Middle-West will find Pensacola the natural gateway. Those from the Eastern states will come through Lake City and Jacksonville, and every one of them will desire to make some kind of a circular of the state on their return trip. Liberal stop-over privileges offered by the transportation companies will bring visitors to practically every city in Florida.

"We have taken on a large responsibility in bringing the AMERICAN PHARMACEUTICAL ASSOCIATION to this state, and it should be the paramount thought of every pharmacist in the state to make this one of the greatest conventions ever held, and to send our guests back home thoroughly sold on Florida. Let every pharmacist give his whole-hearted coöperation, proving to the world that Florida is not a state of isolated cities, but a community of coöperating citizens, sincerely interested in the welfare of all."



HENRY P. THORN.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XX APRIL, 1931 No. 4

HENRY PRICKETT THORN.

Some twenty-five miles south of Trenton and about eighteen miles east of Camden, in Burlington County, New Jersey, there lies the pretty little town of Medford, a shopping center for a large farming territory which surrounds it on all sides. In this little town of about two thousand people, there is a single pharmacy, sufficiently old-fashioned to be recognizable as a place where drugs and medicines are dispensed, and sufficiently modern to provide the many services which our most modern apothecary shops are expected to render in this machine age.

Since 1870, Henry P. Thorn has been a daily, active participant in the life of this pharmacy, and since 1875 he has been its proud owner. More than sixty years in the "drug business" is a good enough record for anyone, but to have spent all these years in the same location speaks volumes for the man who can claim this record.

On January 27th of this year, Mr. Thorn celebrated his seventy-eighth birthday. We happened to "drop in" at the Thorn Pharmacy on the day after this anniversary and found "H. P." on duty alone because his clerk was out sick. "I've got a cold coming on, too," said Mr. Thorn, "but somebody has to be on the job here." Between customers, who, by the way, were waited on with a dispatch that would do credit to any man half the age of Henry P. Thorn, we talked of many things, but chiefly of changes in Pharmacy in the past half century. Only when we insisted that our chief object at this visit was to obtain biographical data, did the conversation turn to "H. P." himself.

He took us back in fancy to the day when he became apprenticed to Isaac W. Stokes, in this very store. Isaac Stokes was the uncle of former Governor E. C. Stokes of New Jersey. Henry Thorn began working for Mr. Stokes on February 7, 1870, and received the munificent salary of forty dollars for his first year's labors. The second year his stipend was raised to fifty dollars. Rapid increases in remuneration to seventy and ninety dollars, respectively, followed in the next

two years. Previous to his pharmaceutical apprenticeship, Mr. Thorn had received a good education in the Friends' School at Medford and in the private school of M. H. Allen. He had the satisfaction of working his way through college, and while he attended the lectures at the Philadelphia College of Pharmacy, he commuted daily from Medford to Philadelphia. He graduated from the Philadelphia College of Pharmacy with the class of 1875, having paid his tuition in part by tutoring some of the younger men of Medford in high school subjects.

Mr. Thorn has always been interested in young people. Undoubtedly this has had much to do with the fact that he retains a youthful spirit and a youthful outlook. He is a frequent guest speaker at the Y. M. C. A. and other gatherings of boys and young men. He is a Director of the Burlington County Y. M. C. A. and was an officer in the organization for many years.

His college days were spent under the tutelage of the old masters, among whom were Procter and Maisch, the former having passed away during young Thorn's Junior year at college. On the wall of the store office in which we were chatting, there hangs a picture of Procter's grave.

In 1876 Mr. Thorn joined the New Jersey Pharmaceutical Association, and became its president in 1889. For many years he was active in procuring legislation for pharmacists in New Jersey and fighting legislation inimical to their interests.

In 1879 he became a member of the AMERICAN PHARMACEUTICAL ASSOCIATION, and for many years he attended its conventions regularly. He is a life member of the Philadelphia College of Pharmacy and Science.

It is not strange that one so active in his own profession should also be an acknowledged leader in his community. Mr. Thorn has been president of the Burlington County National Bank of Medford, New Jersey, for years, and a director of the Burlington County Trust Company of Moorestown, New Jersey.

Until recently, he was a cranberry grower and a director of the Growers' Cranberry Company of New Jersey. At one time he was secretary of the Burlington County Association for Insurance.

Anyone connected in any way with the Stokes family in New Jersey is quite apt to get a taste of politics, and here, too, Henry P. Thorn was an active worker for many years. He was at one time a member of the Burlington County Board of Taxation and a member of the Republican State Committee from Burlington County for nine years. He was a delegate to the Convention which nominated President Harrison. To this day, he is called upon for advice by the younger men in politics in his county, and if anyone thinks he can get the vote of a Senator from that county on matters pharmaceutical over the objections of Henry P. Thorn, let him try it.

Mr. Thorn is a member and trustee of the Medford M. E. Church, and a member of various benevolent and fraternal associations, including Mt. Holly Lodge, No. 14, F. & A. M. and Cyrene Commandery, No. 7, Camden, New Jersey.

In Henry P. Thorn we have a splendid example of the apothecary who typifies all that we so fervently desire the pharmacist to be—counselor and friend to his neighbors; honored and loved by the people in his community; respected by his professional brethren; guide, philosopher and friend to two generations of folk who think the more of all pharmacists because Henry P. Thorn was *their* pharmacist.

R. P. F.

EDITORIAL

E. G. EBERLE, EDITOR 10 West Chase Street, BALTIMORE, MD.

ASSOCIATION MEETINGS.

DURING the coming months the meetings of the greater number of state associations will be held, and the JOURNAL takes this opportunity of extending best wishes for successful meetings. The topics of discussion vary to some extent, but most of the problems are related—they are influenced by the conditions of pharmacy, the drug business and the progress of developments. State associations and national organizations depend for their success on the loyalty and support of the individuals comprising them—no single group can stand alone, and is helpless, in degree, without the support and coöperation of the others. The spirit of coöperation is expressed in the following resolutions, adopted by the National Association of Retail Druggists at the last annual meeting, held in Atlantic City.

WHEREAS, many large fortunes have been built largely through sales in retail drug stores and through other pharmaceutical activities, and

WHEREAS, the possessors of many of these fortunes have not been made acquainted with the endowment needs of pharmacy at a time when they were planning the disposition of their wealth, with the result that the proportion devoted to pharmacy, as compared to other professions and causes, is not in keeping with its importance and with its services to humanity, and

WHEREAS, the needs of the American Institute of Pharmacy in Washington, of the many schools and colleges of pharmacy throughout the land, of the necessary researches and surveys in the professional and economic phases of pharmacy, particularly in the improvement of standards, and of proper publicity for pharmacy, are very great and pressing if the profession is to fully discharge its obligations, and

WHEREAS, such endowments would not only place pharmacy in a position conforming to its importance, but would also enable it to increase its contributions to the comfort and safety of life, and

WHEREAS, it is necessary and timely that it be explained in a dignified but forceful manner, that a proper proportion of the means made in pharmacy should be devoted to its advancement, therefore, be it

Resolved, by the National Association of Retail Druggists that its incoming president appoint a committee of five members who shall acquaint our members with the needs of pharmacy and coöperate with them and with other associations, in making contacts with the men of large means in their respective communities to the end that these various pharmaceutical activities may receive the financial assistance that they require and deserve.

Parts of an editorial of about a year ago are repeated in the following:—Associations should become thoroughly acquainted with the opportunities afforded them by the House of Delegates of the AMERICAN PHARMACEUTICAL ASSOCIATION, and a re-reading of the able address by its Chairman at the Baltimore meeting is commended (May JOURNAL, A. PH. A., pages 499–502). The House of Delegates provides a real federation of pharmaceutical interests, of which Dr. James H. Beal has said that "it is a real clearing house for pharmacy and affords the means whereby the state associations may, through their representatives, confer upon policies of common interest and also where the great national organizations of pharmacy may meet and coördinate their respective policies with each other and with the state societies."

Chairman R. L. Swain comments: "The House of Delegates thus constitutes a vital influence in pharmacy; its potential force is almost without limitation. It is the one place where state views may be given a national expression; where the problems affecting pharmacy in one state may be met with the forces which have solved them in others; where diverse sectional views may be welded into a policy applicable to the needs of pharmacy everywhere. The House of Delegates affords an opportunity for the advancement of every pharmaceutical purpose. It is especially adapted to the needs and problems of individual pharmacists. It reaches out and touches their daily work. It provides the place where their hopes and ideals may be enlarged to embrace a national outlook."

The following resolution was adopted by the ASSOCIATION at the Baltimore meeting:

Resolved, that the thanks of the AMERICAN PHARMACEUTICAL ASSOCIATION be conveyed to the Chairman and members of the Headquarters Building Committees, to the contributors and to all others who have had a part in making the erection of the Headquarters Building in the City of Washington, a reality, and be it further

Resolved, that we urge all pharmacists who have not yet contributed in fullest measure to the success of this undertaking, to give it their further material support.

There is no influence for pharmacy more potent and powerful in the accomplishment of good than that of business and professional men unselfishly banded together for the purpose of promoting the general welfare of pharmacy. The growth of coöperation stimulates the growth and strength of an organization; the importance of the work for which the association is established is measured by the public by the degree of coöperation among its members.

May the annual meetings of all associations be outstandingly successful!

UNITED STATES PHARMACOPŒIAL AND NATIONAL FORMULARY EXHIBIT.

SPACE has been granted the National Formulary Committee in the American Medical Association Scientific Exhibit during the meeting of the American Medical Association in Philadelphia next June. This evidences the fine spirit of coöperation so well expressed by Dr. Morris Fishbein:—"The physician thoroughly trained in therapeutics must depend on the pharmacist to provide what he desires for the patients promptly and efficiently. The promotion of scientific prescribing and dispensing will increase confidence in medicine and in pharmacy and is unquestionably the best method of attacking pseudo—scientific and fanatical cultists who oppose medical progress."

The same thought is expressed and shown in the *Formulary* of Johns Hopkins, and in the more recent North Hudson Hospital *Manual* to which reference has been made elsewhere in this issue of the JOURNAL; these references apply to other hospitals throughout the country. In a related way the same message is being made effective by the work of pharmacists of Chicago; President George P. Muller, of Philadelphia County Medical Society, emphasized it at the December meeting of physicians and pharmacists in Philadelphia, when he suggested a display of U. S. P. and N. F. preparations at the meeting of the American Medical Association.

This month at the New York Academy of Medicine a meeting of physicians and pharmacists was held under the auspices of the Academy of Pharmacy and the New York Branch of AMERICAN PHARMACEUTICAL ASSOCIATION. On this occasion two important papers of the meeting were ably discussed by physicians and pharmacists; one entitled, "What the Modern Physician Should Expect of the Modern Pharmacist," presented by Dr. Horatio C. Wood, and the other by H. V. Arny on "The Physician and the Pharmacist as Co-Workers."

It has been stated before in these columns that the most potent measure for bringing about an understanding of the mission of professions is reasonable, rational discussion with the purpose of devising the best means for being of service to the public. This creates public confidence in the individuals, in the practice of medicine and of pharmacy. It benefits the public. The words of Dr. S. Solis Cohen have heretofore been quoted, but they seem timely in this comment, therefore a repetition will be pardoned.

"Let the AMERICAN PHARMACEUTICAL ASSOCIATION join the American Medical Association in its determination that the errors of the past be corrected; that the interests of the people, the interests of science shall be our own chief interests and that selfish obstructionists shall be silenced and shamed. Then we can confidently face the future, sure of what is better than the mere achievement of success—the deserving of it."

The following resolutions, adopted at the last annual meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION, are applicable:

"*Resolved*, that the AMERICAN PHARMACEUTICAL ASSOCIATION commend the general excellence and usefulness of New and Nonofficial Remedies published by the American Medical Association and that pharmacists everywhere be urged to place this volume upon their shelves of reference works with the United States Pharmacopœia, National Formulary and Recipe Book."

"*Resolved*, that we again recommend to all State and Local Pharmaceutical Associations the importance of maintaining professional contact with State and Local Medical Societies to the end that a spirit of coöperation and better understanding between the medical profession and pharmacy may be fostered and maintained."

"*Resolved*, that pharmacists throughout the United States be urged to continue in their efforts to acquaint practicing physicians with the object, legal status and contents of the National Formulary to the end that full use may be made of this important work in prescribing remedies that may be indicated in the treatment of disease."

The United States Pharmacopœial and National Formulary display is expressive of the coöperation which it is desired to commend and impress in this comment. Success is evolved from coöperation with our fellows, for our good, their good and the good of those we serve. The display will create interest and prove helpful in revision and survey work. It is a step in the right direction—a forward movement.

CHICAGO'S CENTURY OF PROGRESS EXPOSITION.

FORREST Crissey, in the *Saturday Evening Post*, of March 28th, describes what will be "Chicago's Century of Progress Exposition." Reference has been made in previous numbers of the JOURNAL—November, page 1167; January, page 78.

Chicago has raised $10,000,000 for the Exposition and General Charles G. Dawes has said, in substance, that "Chicago will open to the world a Century of

Progress Exposition amazingly different from anything ever before staged under the name of exposition; that for romantic interest it will be a Cleopatra of expositions and as dynamic as a modern machine gun battle." Mr. Crissey's comments imply that these are not the exact words of Mr. Dawes, but expressive of the certainty that the exposition will open on schedule time, that it will be different and developed on a formula to make the exposition novel, romantic and dynamic. There is inspiration in the move for stimulating greater progress, renewed hopefulness and inventive genius and impressing the public with the importance and benefits of research in all lines of endeavor.

The general pattern of the Exposition has been designed by the National Research Council with a purpose of visualizing and dramatizing it into a dynamic show—so that the history, the development and the possibilities of arts and sciences, professional and commercial activities, educational and industrial coöperation may be interpreted for making progress. Pharmacy's part should be not only representative of its history, its contribution to the sciences and industries, health and wealth of the nations, but expressive of its greater possibilities.

"PROFIT-PARING IS SO FUTILE."

The *Oil, Paint and Drug Reporter*, of March 9th, is quoted in the following:

"It is not improbable that many materials in the chemical, drug and oil markets could be sold at a reasonable profit at prices lower than those now obtaining. It is certain that a larger number could not, and that a goodly number are being sold at prices which afford little, if any, profit. Prices in all of these markets are, on the average, lower than they were at the beginning of this year, and no evidence of an upward turn is in sight. The strange thing about it is that the reductions, for the most part, have been made in respect of materials which were priced at the first of the year too low to be profitable. Of course, these are the articles in which competiton exists most extensively and most intensively. The pity is that nothing is being gained by this profit-sacrificing competition in price. It is not, by any means, making business better. On the contrary, it is helping greatly to keep business bad."

"The seller who gets the reputation of underselling his competitors openly may have a chance to recoup his losses, if he is losing on the practice, when prices turn upward. Perhaps, he will be in a better position then to offer attractive prices. But, the seller who is so fearful of his unstable position in his market that he resorts to secret underselling will never be rid of that fear. He will never be able to get a profitable price for his goods; because his customers will always be only those whose policy is to insist on bargains. Buyers who fall for the wiles of the secret rebater or briber may have a temporary advantage over those who believe that there is honor in business, but they, too, will be losers in the long run. Somebody some time must pay the losses resulting from the sacrificing of profits. And when the secret underseller sinks into oblivion in his own slime, the honorable seller cannot be expected to take care of those who had given their support to dishonorable practices."

BLOOD TRANSFUSION AS A BUSINESS.

The Health Commissioner of New York finds that the increase of men and women offering blood for sale is large enough to justify opening a bureau of control and to license the applicants. New York City is said to have about 8000 persons selling blood to hospitals and physicians; some of them suffer from disease, and supervision is said to have been lax. All of this will be stopped by examination, registration and license.

Smaller cities may not find the same abuses, but the examination and license system could be utilized in any medical center. It would insure an always present supply of blood donors physically fit for the transfusion, and prevent the recurrence of conditions New York has discovered.

SCIENTIFIC SECTION

THE PHARMACOGNOSY, CHEMISTRY AND PHARMACOLOGY OF VIBURNUM.*

II. HISTORY, BOTANY AND PHARMACOGNOSY OF VIBURNUM LENTAGO LINNÉ.

BY HEBER W. YOUNGKEN.

The first of the series of articles under the general title was presented by the author before the Scientific Section at its Rapid City meeting in 1929. Since that time he has continued his studies upon Viburnum and in this, the second paper of the series, presents the results of observations made upon *Viburnum Lentago*.

HISTORICAL.

In addition to the references made to this species in the previous article (1), the following may be stated: Linnæus, in his *Species Plantarum* (2) described *Viburnum Lentago* from material evidently collected by Kalm during his travels in Canada, as follows: "*Viburnum foliis serrulatis ovatis acuminatis glabris, petiolis glandulosis.* Habitat in Canada. Kalm. *Folio crasso Tini, glabra, denticulis minimis serrulata; petiolis longitudinaliter glandulosis.*"

It has since been described by many American authors including Gray (3), Sargent (4), Britton and Brown (5), Small (6) and Rehder (7).

In "Gray's New Manual of Botany," 7th edition, revised by Robinson and Fernald, page 760, it is placed in the section *Tinus* (Bork) Koehne, of the genus *Viburnum* which includes those Viburnums having winter buds with opposite scales, pinnately-veined leaves, with veins anastomosing near the margin and blue or black drupes whose stones are flat and even. This work assigns to this plant the synonyms of Sweet Viburnum, Sheepberry, Nannyberry and Wild Raisin and gives its distribution as from Quebec to Manitoba and southward.

Britton (8) gives preference to the synonym of Sweet Viburnum but states that it is also known as Sheepberry, Sweetberry, Nannyberry, Nanny Plum, Nancyberry, Wild Raisin, Blackthorn and Black Haw.

Sargent (4) gives an elaborate taxonomic description of this species and states its distribution to be from the Valley of the Riviere du Loup in the province of Quebec to the Saskatchewan, southward throughout the Northern States and along the Allegheny Mts. to Georgia and westward to So. Indiana, S.W. Missouri and Eastern Nebraska. He gives very brief macroscopic characteristics of its bark and wood.

Solereder (9) states that the phellogen is derived from the epidermis in this species.

Under the title of *Viburnum Prunifolium* or Black Haw, the U. S. P. VIII made official the barks of *V. prunifolium* L. or *V. Lentago* L. These continued to be the official botanical sources of the drug in the U. S. P. IX but the U. S. P. X did not admit the drug and it became official in the National Formulary V (1926). However, in the latter, *V. Lentago* was dropped as a botanical source of the official article, the root bark of *V. prunifolium* only being recognized.

MATERIALS AND METHODS.

The materials for this investigation consisted of stems, roots, stem and root barks, leaf and flowering branches and leaf and fruiting branches collected in the Arnold Arboretum by H. W. Youngken during the late spring, summer and early autumn of 1928, 1929 and 1930 and entire shrubs growing near Framingham, Mass. and collected by H. W. Youngken, May 20, 1929 and September 14 and 16, 1930.

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* This investigation was aided by a grant from the AMERICAN PHARMACEUTICAL ASSOCIATION Research Fund. Presented in part to the Scientific Section, A. PH. A., Baltimore meeting.

Herbarium sheets were prepared of each lot and labeled as to location and date of collection.

Root and stem barks were studied on the living plants, then removed, some preserved in absolute and in 50% alcohol, the balance dried partly in the sun and partly by artificial heat and subsequently studied in the laboratory.

Representative portions of leaf and flowering and leaf and fruiting branches were partly preserved in 50% alcohol and partly in absolute alcohol.

The wood of many roots and stems was also studied and additional material

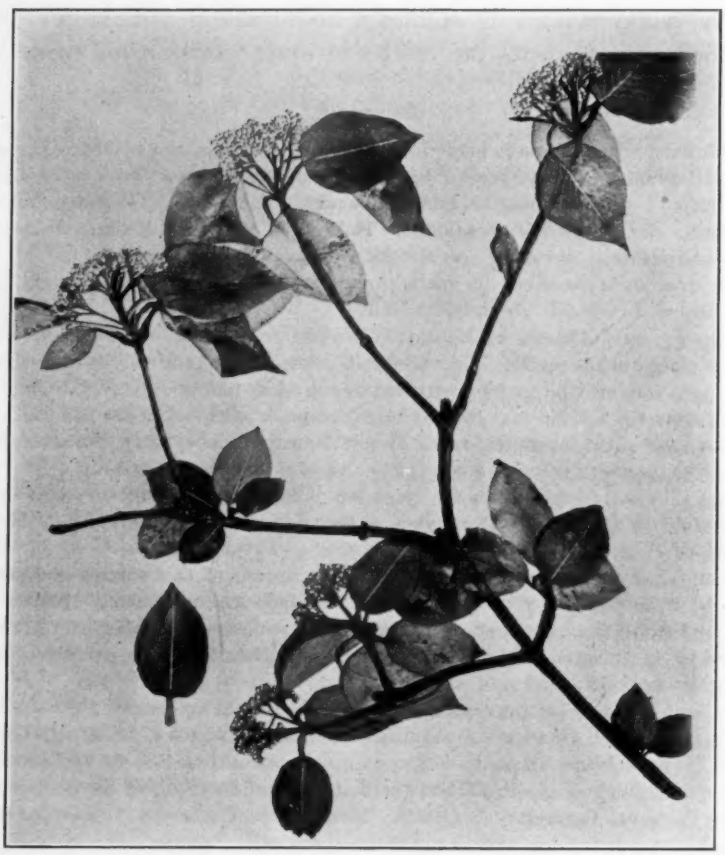

Fig. 1.—*Viburnum Lentago* L. leaf and flowering branch. To left, leaf with winged petiole (× 1/3).

preserved in the dried condition and in strong alcohol, for later chemical and pharmacodynamic studies.

Some of each kind of bark was deprived of all adhering wood and powdered by use of a drug mill previously freed of all adhering matter.

The plants and organs were studied in the field and in the laboratory as to habit and gross morphological features including organoleptic tests.

Microscopical studies were made of transverse, radial-longitudinal and tangential sections. A series of sections were cut through the roots and stems as

well as their bark regions at varying levels, some mounted temporarily in water, in phloroglucin and hydrochloric acid, in 1:100 ferrous sulphate solution, in chloral hydrate solution, in corallin soda and in potassium hydroxide T.S. Others which were stained with safranin and methyl green were permanently mounted in balsam. Others were heated to boiling in chloral hydrate solution and treated with a mixture of equal parts of tincture of alkanna and distilled water.

The inner surfaces of a number of pieces of barks were treated with a 1:1000 freshly prepared solution of ferrous sulphate and the color reactions recorded. Those of other pieces were tested with a 2% solution of ferric chloride and color reactions recorded.

The ground barks were boiled with distilled water, the decoction filtered and the filtrate treated with 2% solution of ferric chloride and the color and precipitate noted.

Another test for tannin was made by treating filtered decoctions of the barks with ammonium molybdate solution and noting the color reaction.

Microscopical examination was also made of the powdered barks completely deprived of wood and of scrapings from barks.

The powdered barks were studied in distilled water and in diluted iodine mounts for starch and in boiling distilled water, chloral hydrate solution, and in phloroglucin and hydrochloric acid for other elements. The materials were concentrated for further study of the elements in chloral hydrate solution.

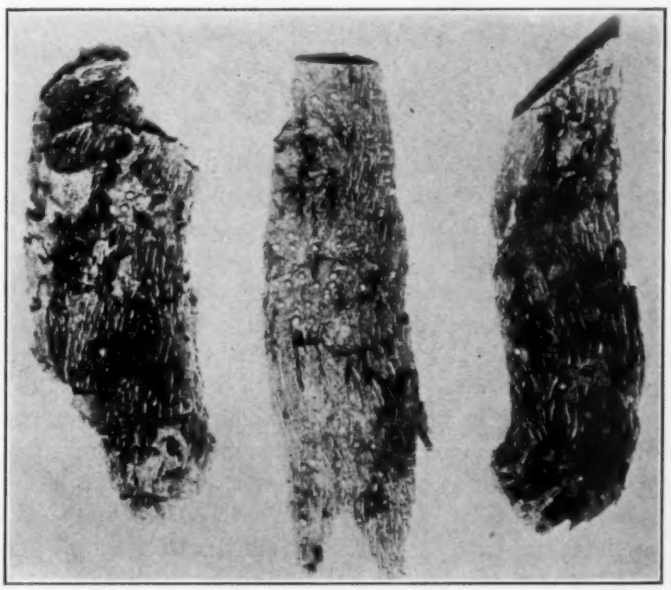

Fig. 2.—Root bark of *Viburnum Lentago* (× 7/10).

Both root bark and stem bark were triturated in a mortar with syrupy phosphoric acid and the odor noted.

Samples of root and stem barks and also of wood were sent to Dr. J. C. Munch for pharmacodynamic studies and to Prof. F. J. Amrhein collaborating on the chemical studies of this and other Viburnum species.

Specimens of the materials used in this investigation have been permanently deposited in the herbarium of the Massachusetts College of Pharmacy.

DESCRIPTION OF VIBURNUM LENTAGO L.

Viburnum Lentago L. is a shrub or more frequently a bushy, round-topped tree attaining a height of about 30 feet and a trunk diameter of 10 inches with reddish brown bark and smooth,

grayish winter buds, the terminal buds being pointed. The leaves are petiolate, ovate to elliptic with the lamina usually acuminate at apex and broadly cuneate, rounded or sub-cordate at base, with serrulate margin, shining bronze-green when they first appear and covered on both surfaces with a rusty pubescence, becoming green to dark green as they develop and showing at maturity few hairs which are chiefly over the veins.

Of a large number of leaves examined the whole leaf including the petiole ranged up to 13.5 cm. in length and the lamina up to 5.4 cm. in breadth. While many of the petioles are winged and wavy-margined, there is a large number not showing the winged condition. The winged petiole of many of the leaves is an outstanding characteristic of this species.

The flower buds are globular and pale yellowish green, and appear in the axils of the leaves (upper). These burst open from April to June, expanding into short, flattened, scurfy, sessile cymes from 2 to 5 inches in breadth.

The flowers occur on slender pedicels, each being subtended by two short bracteoles. Each is about 1/4 inch across and possesses a green, ovoid calyx tube with 5 acute lobes, 5 epipetalous stamens with slender filaments and yellow anthers and a pistil consisting of a one-loculed, inferior ovary, thick, terminal style and a broad stigma.

The fruit is an edible, blue to black, oval to ellipsoidal, glaucous drupe with a sweet, succulent pericarp and containing a flattened stone within which is an albuminous seed. The fruits ripen in September when they are found dangling on slender, pendulous, red-stemmed stalks of the cyme.

DESCRIPTION OF ROOT BARK OF VIBURNUM LENTAGO L.

The bark occurs in irregular, transversely curved or quilled pieces usually from 1.5 cm. to 9 cm. in length and from 1.5 to 2 mm. in thickness. The outer surface is brown, irregularly longitudinally wrinkled, showing occasionally root scars or attached portions of rootlets. The inner surface is reddish brown to brownish red or whitish, longitudinally striate. The fracture is short and uneven, the fractured surface showing a brown outer bark and whitish middle and inner bark, in which are imbedded a number of pale yellow groups of stone cells that are discernible with the aid of a hand lens. The odor of the fresh bark is distinctly valeric acid-like, that of the dried bark indistinct or faintly valeric acid-like, becoming more pronounced upon moistening and strongly valeric acid-like upon triturating it in a mortar with syrupy phosphoric acid. The taste is very bitter and mildly astringent. A 1:1000 solution of ferrous sulphate (freshly prepared) applied to the inner surface of this bark gives a grayish blue color. A 2 per cent solution of ferric chloride applied to the inner surface of this bark gives a greenish black color.

When 2 Gm. of root bark were boiled with 40 cc. of distilled water and filtered, a nearly colorless filtrate was obtained. When a portion of this filtrate was treated with 4 drops of a 2% solution of ferric chloride, the filtrate was colored green and a greenish black precipitate formed which was collected on the filter paper. The second fraction of the filtrate was treated with 2 drops of a solution of ammonium molybdate when a yellow color resulted. This indicates the presence of a tannin.

HISTOLOGY OF THE ROOT OF VIBURNUM LENTAGO L.

A. Root of Primary Growth.

This growth is shown only for a comparatively short distance above the root cap in this species of *Viburnum*. Transverse sections examined microscopically exhibit the following structures, passing from periphery to the center:

1. Epidermis, a layer of epidermal cells with outer walls suberized and convex. Some of the cells show outgrowths in the form of papillæ and short root hairs.

2. Primary Cortex, 5 to 7 layers of thin-walled, polyhedral to spheroidal parenchyma cells and angular air spaces. Many of the parenchyma cells contain small starch grains and a few contain rosette aggregates of calcium oxalate although some of the sections do not show rosette aggregates of calcium oxalate.

The starch grains were mostly minute, simple and spheroidal and from 1 to 3.4μ in diameter, fewer were simple, spheroidal and subreniform to ovate and up to 10μ in diameter, but occasionally simple ovate or spheroidal grains are found up to 17μ in diameter, and a few 2–3 compound grains also occur.

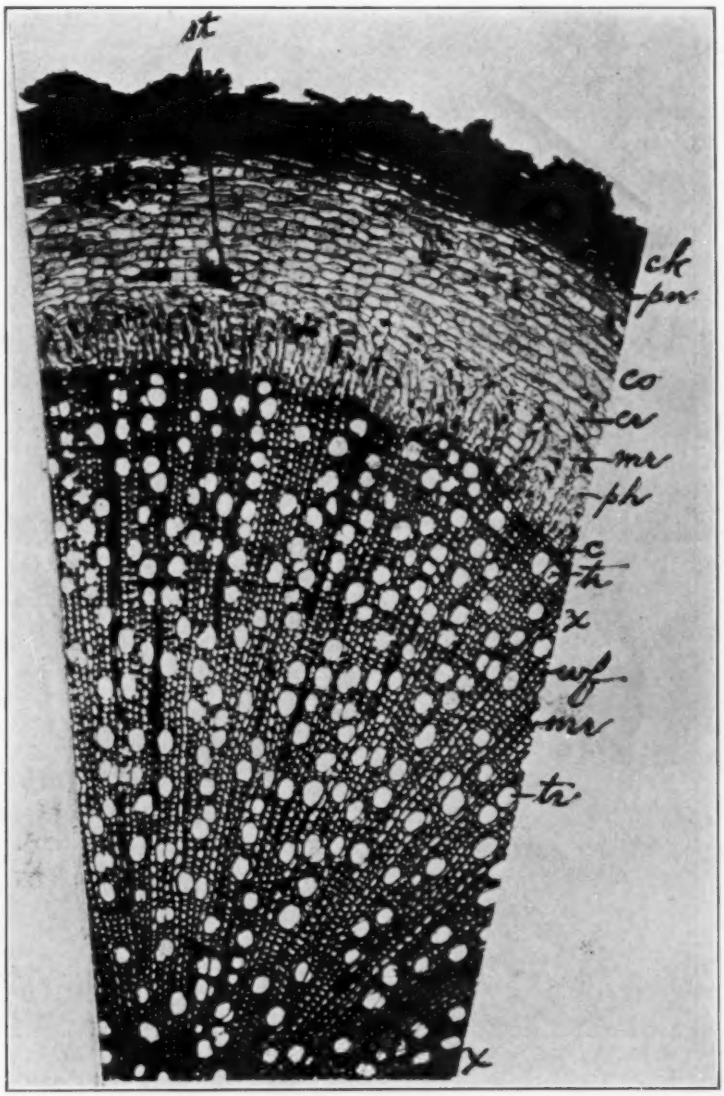

Fig. 3.—Photograph of a representative portion of a transverse section of middle-aged root of secondary growth of *Viburnum Lentago* (× 69). *ck*, cork; *pn*, phellogen; *co*, secondary cortex; *cr*, rosette aggregate crystal of calcium oxalate; *mr*, medullary ray; *ph*, phloem; *c*, cambium; *tr*, trachea in xylem; *x*, xylem; *st*, groups of stone cells.

3. Endodermis, of elliptic shape, consisting of slightly tangentially elongated endodermal cells with clear contents and slightly lenticularly thickened radial walls.

4. *Pericambium*, of a layer of meristematic cells.

5. *A Diarch to Triarch, Radial Vascular Bundle* of two to three xylem and two to three phloem strands.

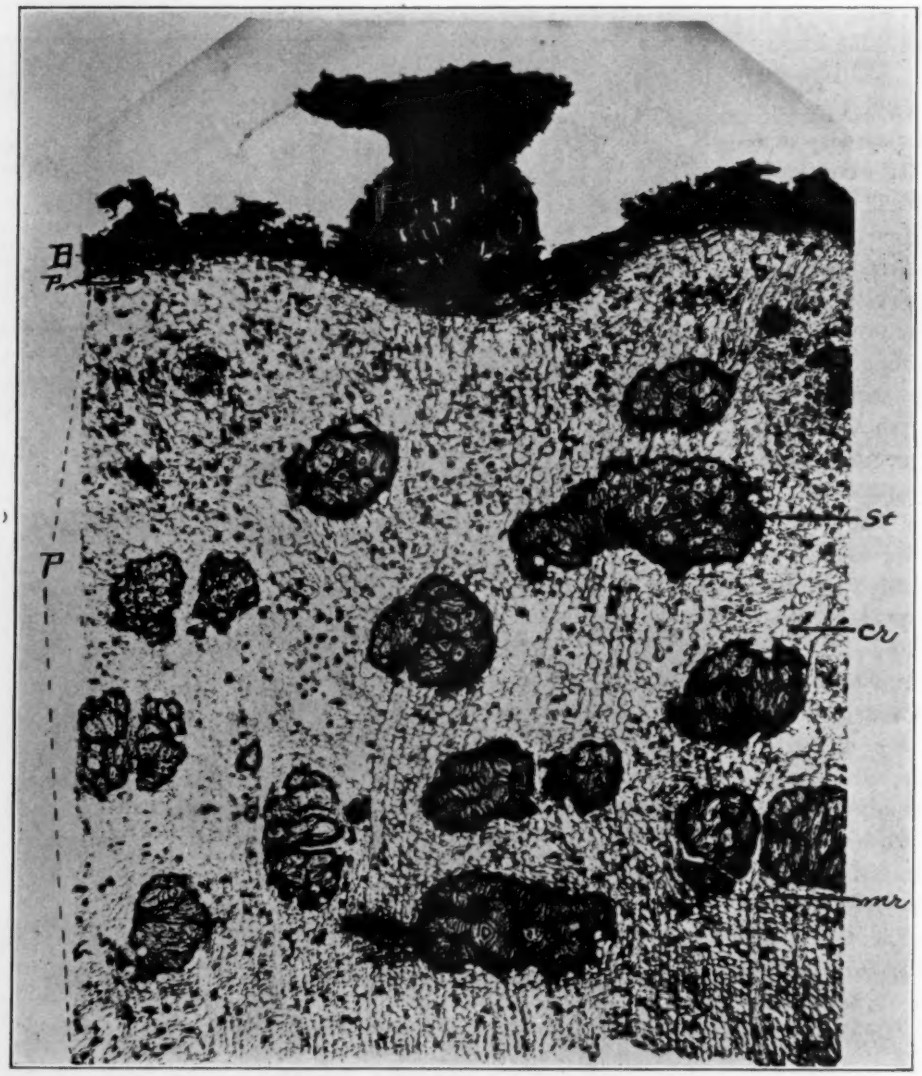

Fig. 4.—Photomicrograph of a representative portion of a transverse section of older root bark of *Viburnum Lentago* (× 46). Note that secondary phellogens have cut off a series of cork layers as far as the outer phloem with resultant exfoliation of outer tissues. *B*, borke with an included group of stone cells, surrounded by dead tissue; P_n, a secondary phellogen; *P*, phloem; *st*, group of stone cells; *mr*, medullary ray; *cr*, rosette aggregate of calcium oxalate.

6. *Pith*, a very narrow central core of few, small parenchyma cells and angular air spaces.

B. Root of Secondary Growth.

Transverse sections through a root of secondary growth in the early fall of its first year averaged 1.47 mm. in diameter. These exhibited shrunken epidermis and primary cortex in the process of peeling off, several layers of cork cells, a phellogen of clear meristematic cells in the process of division, a narrow secondary cortex of 3 or 4 layers of tangentially-elongated to rounded parenchyma cells and a phloem of 5 to 6 layers of cells becoming smaller in the inner region, an undulate cambium, and a porous, radiate wood cylinder 0.7 mm. in diameter.

The maximum thickness of the bark was 420μ. There is no sclerenchyma formed in the bark of this early secondary growth. Numerous rosette aggregates of calcium oxalate occurred in the cortex and phloem.

Transverse sections through the root of secondary growth of the fall of the second year's growth exhibited a broader secondary cortex, phloem and wood zones and measured about 2 mm. in diameter. The wood of this and older roots shows a greatly increased rate of growth over that shown by the cortical and phloem regions. No sclerenchyma was found in the bark of these sections. The thickness of the bark was approximately 570μ.

Transverse sections through a root of 3 years' growth were up to 6.25 mm. in diameter with a maximum bark thickness of 810μ and the wood having a diameter of about 5 mm.

The root of this age exhibits the following structure:

1. Cork of several layers of tangentially elongated and flattened cork cells which in cross sections were up to 61.4μ long and 34μ in width. Their walls are suberized.

2. Phellogen of tangentially-elongated meristematic cells appearing broader than the cork cells.

3. Secondary Cortex of 10 to 12 layers of oval to rounded to tangentially elongated starch- and crystal-parenchyma together with frequent rifts between groups of parenchyma cells. Some of these rifts were nearly filled with rosette aggregates of calcium oxalate.

4. Phloem, a broad region separated into numerous phloem patches by medullary rays which run straight or curved and at times are convergent in groups as viewed in cross sections. Many of the phloem cells contain rosette or stellate aggregates and others starch grains. Groups of thick-walled and strongly lignified stone cells and isolated stone cells of a variety of shapes occur in this region and these stone cells have branching pore canals and a narrow lumen.

5. Cambium, a wavy ring of more or less collapsed secondary meristem.

6. Xylem, a very broad central cylinder separated into numerous wood wedges by somewhat undulate xylem medullary rays. The medullary rays are mostly 1 cell wide in this region although a number of them are 1–2 cells wide and an occasional 1–3-celled medullary ray is discernible in a series of sections.

In cross sections the tracheæ are characteristically polygonal, occur mostly singly surrounded by wood fibres, but there also occur a scattering of groups of two and a few groups of three tracheæ.

In radial longitudinal sections the cork cells are tangentially elongated, frequently up to 70–80μ in length and up to 28.32μ in breadth, occasionally up to

77.88μ x 35.4μ. The cortical parenchyma cells are tangentially elongated, rounded or ovate and numerous rifts occur between groups of these. The phloem in this kind of section shows numerous rows of phloem cells containing rosette aggregates and scattered groups of stone cells with thick walls, the groups being longitudinally elongate. The sieve tubes are numerous and exhibit prominent transverse to oblique sieve plates. Numerous crystal fibres containing rosette aggregates of calcium oxalate occur in the cortex and phloem.

The xylem contains tracheæ which show scalariform, pitted and bordered pore markings. The scalariform type shows oblique septa.

The medullary rays have porous lignified walls in the xylem. They contain either starch grains or calcium oxalate crystals. Numerous tracheids with straightened walls and two to several rows of circular to elliptic bordered pores are present. The wood fibres are lignified, elongated, taper ended and have bordered pits in their walls.

Tangential-longitudinal sections show the medullary rays to be up to 1–3 cells in width, most of them being 1 cell wide, many being from 1–2 cells in width. The cork cells are polygonal. The stone-cell groups appear considerably crenated and are frequently lobed and branched. These ranged up to 1700μ in length—up to 170μ in breadth in roots of this age. In an older root they were up to 2315.90μ in length and up to 433.16μ in breadth. Numerous crystal fibres containing rosette aggregates of calcium oxalate occur in both cortex and phloem.

Scrapings of the bark of this and older roots mounted in water show the starch grains to be simple or 2- to 3-compound. The simple grains are spheroidal, ovate, ovate-truncate to pyriform in outline, many with a distinct, 2–3 cleft hilum which is frequently alate. Most of the larger starch grains were up to 18μ in diameter or length, a few up to 20μ in diameter or length. The hilum in the elongated types is excentric. Numerous rosette aggregate or stellate crystals of calcium oxalate occur in cells of the cortex and phloem and, in addition, an occasional monoclinic prism. The rosette aggregate and stellate crystals were mostly up to 35μ in diameter, a few attaining the diameter of 49.64μ. The monoclinic prisms were up to 42.48μ in diameter.

DESCRIPTION OF THE STEM BARK OF VIBURNUM LENTAGO L.

In transversely curved, irregular or quilled pieces 1.5 cm. to 15 cm. long and usually up to 2.5 mm., more rarely up to 4 mm. in thickness (old bark); outer surface of young bark light reddish brown to dark brown and marked by an occasional dark orange colored, circular (on young bark), lenticular to ovate, raised lenticels, smooth with scattered scurfy areas; outer surface of old bark reddish brown to blackish brown, irregularly fissured and broken into small thiek plates which frequently are broken on the surface into thin appressed scales, reddish brown to green where cork is abraded; cork frequently detached and scaly on middle aged and older stems; inner surface pale yellow to greenish yellow to pale yellow marked with irregular blotches of reddish brown to brownish red on old trunk bark; fracture short and irregular, exhibiting a fractured surface with reddish brown to blackish brown cork and greenish yellow to reddish brown middle and inner bark in which pale yellow masses of sclerenchyma are scattered; odor indistinct or faintly aromatic in dried barks, becoming aromatic upon moisten-

ing and mildy valeric acid-like upon triturating with syrupy phosphoric acid; taste bitter and astringent. A 1:1000 freshly prepared solution of ferrous sulphate imparts a grayish blue color when applied to the inner surface. A 2% solution of ferric chloride gives a greenish color when applied to the inner surface. This color changes later to greenish black.

If 1 Gm. of the ground bark is boiled with 20 cc. of distilled water and filtered and 4 drops of a 2% solution of ferric chloride is added to the filtrate, a greenish brown coloration and a greenish black precipitate result.

If 1 Gm. of ground bark is boiled with 20 cc. of distilled water and filtered and to the filtrate 2 drops of ammonium molybdate solution be added, a yellow color develops. These tests indicate the presence of tannin.

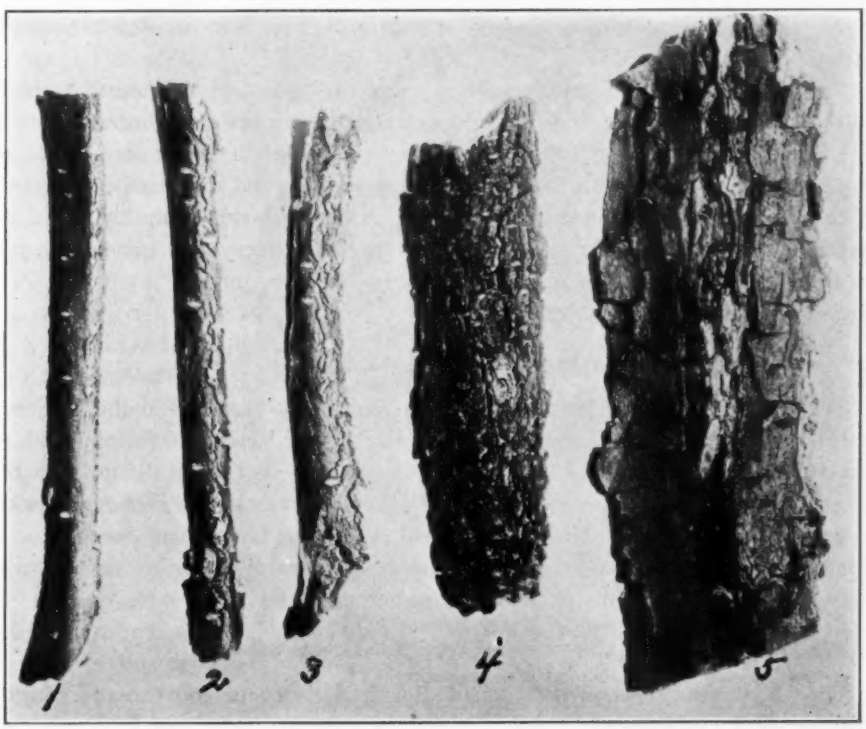

Fig. 5.—Stem bark of *Viburnum Lentago* taken from successive descending levels of the stem. Number 1 about 2 feet from tip. Number 5 from basal portion (nat. size).

HISTOLOGY OF THE STEM OF VIBURNUM LENTAGO L.

A. Just below Terminal Bud.

Transverse sections cut just beneath the terminal bud show an quadrangular to hexagonal outline with rounded angles and exhibit the following internal structure:

1. Epidermus of tangentially-elongated epidermal cells with a well-developed cuticle.

2. Exocortex of about three layers of parenchyma cells with brownish walls, some containing starch, many containing chloroplasts.

3. Mediocortex of several layers of collenchyma cells and showing rifts between groups of cells. Some of the rifts are partially filled with rosette aggregate or stellate crystals of calcium oxalate.

4. Endocortex and *5, Pericycle* of parenchymatous cells with starch or crystal contents and also showing rifts containing rosette or stellate crystals of calcium oxalate. An occasional pericyclic fibre has already made its appearance in the pericycle.

6. Fibrovascular bundles of the open collateral type arranged in an hexagonal form and separated by narrow medullary rays. There are six larger primary bundles and between these a number of narrower secondary bundles.

7. Medulla, a broad central zone of polygonal, pitted parenchyma cells and angular air spaces. Many of the cells contain rosette aggregates of calcium oxalate, others simple to compound starch grains, a few brownish amorphous contents.

The outer margin of the pith shows several layers of conjunctive tissue of smaller cells some of which possess brownish contents, a few rhombohedral crystals.

The starch grains were mostly simple, spheroidal or ovate with a 2-curved hilum. A few 2–3-compound starch grains were observed in some of the sections. The rosette and stellate crystals of calcium oxalate measured up to 35.4μ in diameter. A relatively fewer number of rhombohedral crystals, occurring in the conjunctive tissue, phloem, pericycle and cortex, were mostly up to 17.7μ, but occasionally up to 39μ in length.

B. First Year's Growth, 8 Inches below Terminal Bud.

Transverse sections through the first-year stem made 8 inches below the terminal bud are nearly circular in outline. These show an interrupted circle of small islets of fibres and isolated single fibres in the pericycle. The bark region had a maximum thickness of 416.5μ. The xylem was up to 500μ in thickness. The bundles were arranged in a circle and separated by narrow medullary rays. There were fewer rifts in the bark region and considerably fewer crystals of calcium oxalate were present than in those of earlier growth.

C. Third-Year Stem.

The third year's growth shows phellogen activity in the exocortex and the beginning of formation of strata of cork in this region. The bark region has been augmented but slightly while that of the wood has greatly increased.

D. Fourth-Year Stem.

Cross sections of the stem in the summer of the fourth season of growth show a maximum bark thickness of 583.1μ. The cork has begun to exfoliate and evidences of increased secondary phellogen activity is seen. Small islets of stone cells and isolated stone cells have arisen in the cortex and phloem. A few narrow pericyclic fibres are observed. Large and small rifts are seen in the mediocortex and small rifts in the phloem, some containing rosette aggregates or stellate crystals of calcium oxalate.

The cortex and phloem parenchyma is rich in these types of crystals and a smaller number of rhombohedra of calcium oxalate are also to be observed.

The cortical parenchyma cells have become more tangentially elongated. The medullary rays in the phloem pursue a straight to slightly curved path and are rich in starch content.

The xylem is porous and radiate being divided into a large number of elongated wood wedges by many narrow medullary rays. Each wood wedge shows numerous thick walled, lignified, wood fibres and many tracheæ, the latter mostly arranged singly and in groups of two. The conjunctive tissue around the protoxylem is also lignified.

The pith averaged about 1034 μ in diameter and was composed of polygonal pitted parenchyma, some of the cells containing starch, others rosette or stellate crystals of calcium oxalate and a few brownish amorphous contents. The stellate crystals in the sections measured up to 53.1 μ in diameter but were mostly under 40 μ. The rhombohedra were up to 39 μ in length.

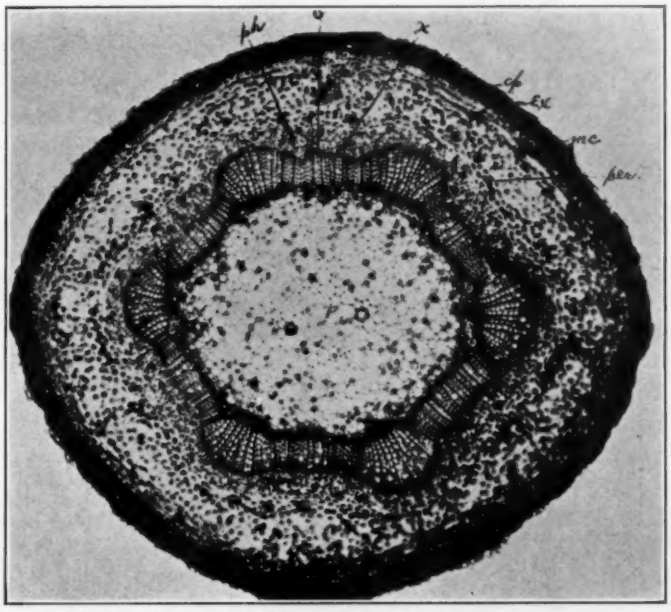

Fig. 6.—Photomicrograph of a transverse section of the stem of *Viburnum Lentago* cut just beneath a terminal bud (× 23). *ep*, epidermis; *ex*, exocortex; *mc*, medicocortex; *per*, pericycle; *ph*, phloem; *c*, cambium; *x*, xylem; *p*, pith.

Longitudinal radial sections showed numerous rosette and stellate crystals of calcium oxalate in the cells of the cortex and pericycle, a few non-lignified pericyclic fibres, longitudinally-elongated groups of stone cells in cortex and phloem, numerous crystal fibres in the phloem, the latter containing rosette and stellate crystals and in some instances a mixture of these types with rhombohedra.

Tangential sections showed the medullary rays to have a range of 1 to 2 cells in width.

HISTOLOGY OF THE STEM BARK OF VIBURNUM LENTAGO L.

A. Young Stem Bark.

The microscopical features of the bark regions of the stem sections described in the foregoing paragraphs are those typical of young *Viburnum Lentago* stem barks as found in commerce in the past. Since the run of commercial bark material usually has pieces with adherent wood present and occasionally segments of the

stems of the plants from which the bark was gathered, the entire stem histology should aid the pharmacognosist in tracing the botanical source of the samples.

B. Old Stem Bark.

The sections studied were those obtained from a piece of bark cut from the

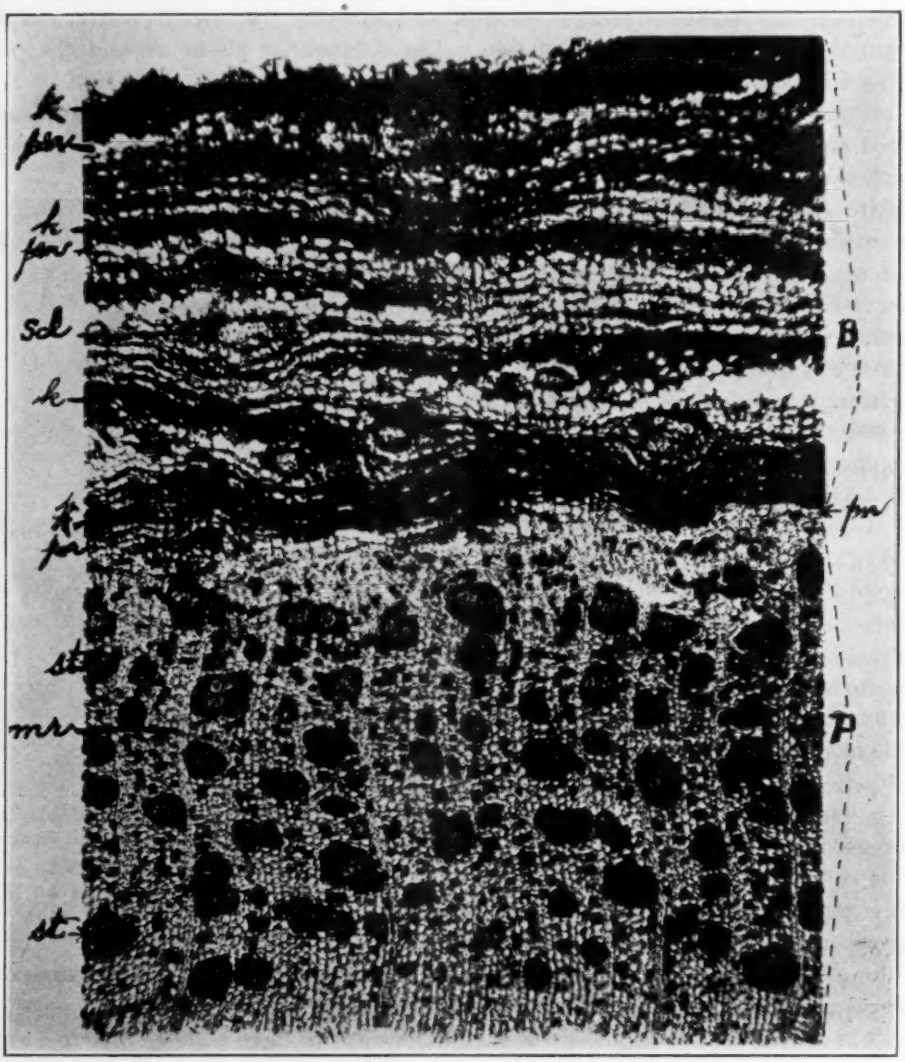

Fig. 7.—Photomicrograph of a representative portion of a transverse section of the old stem bark of *Viburnum Lentago* showing secondary phellogen activity as far as the outer phloem region (×50). *B*, borke; *pn*, a secondary phellogen; *P*, phloem; *K*, *k*, cork; *scl*, group of sclerenchyma fibres in the pericycle; *p*, outer dead phloem; *pn*, a secondary phellogen; *st*, groups of stone cells; *mr*, medullary ray.

base of the old thick stem of a *Viburnum Lentago* tree about 15 feet in height in the Arnold Arboretum. This bark was collected in the summer of 1929. This bark had a thickness of 3 mm. nearly half of which consisted of borke.

In cross sections it exhibited (1) an outer, broad borke region comprising nearly half of the thickness of the section. In this were to be noted a series of secondary phellogens extending as far as into the outer portion of the phloem. Each of these had laid down cork tissue on its outer face.

Passing from the outer surface inward, we note numerous layers of dead fissured cork, black in color and in the process of sloughing off. Next, a series of wavy phellogens extending tangentially across the cortex, pericycle and outer phloem regions. These had cut off reddish brown to black, flattened, irregular shaped cork cells on their outer faces. Between these wavy phellogen and cork strata lay irregular shaped areas of cortex, pericycle and outer phloem regions, all of which showed varying evidences of necrosis. Many of these areas contained groups of stone cells lying amidst crystal and starch parenchyma and in addition the pericyclic areas often showed slightly lignified pericyclic fibres. The inner secondary phellogens lie in the outer phloem region and have cut off larger cork cells with reddish brown walls and protoplasmic contents. Between these areas leptome tissue, some containing islets of stone cells were found.

The cork cells were usually up to 35.4μ in length and up to 17.70μ in width but attained a maximum length of 53.1μ and a width of 33μ.

The stone-cell groups appeared to be more numerous than those of old stem barks of the other Viburnum species studied.

Radial longitudinal sections exhibit numerous crystal fibres in the phloem. These contain rosette and stellate crystals and in some instances rhombohedral crystals of calcium oxalate. The large number of these is very striking. The stone-cell groups are elongated longitudinally and attain a length of 2000μ and a width of 166.6μ. In nearly every group, thick walled, elongate to spindle shaped forms were seen lying amidst shorter, irregularly shaped forms of a large variety of sizes. The cork cells appear very similar to those seen in cross sections.

Tangential-longitudinal sections show the cork cells to be irregularly polygonal to tangentially elongated. The medullary rays appear spindle shaped and 1 cell to 1 to 2 cells in width, their cells being somewhat larger than surrounding parenchyma cells. The stone-cell groups frequently appear branched and show a great variety of marginal indentations and irregularly dentate, crenate, slightly lobed to deeply lobed or knobbed margins. Some of the larger stone-cell groups were up to 2666μ in length and 166.6μ in width.

The individual stone cells varied from isodiametric to circular, ovate, lenticular, conical and oblong. Some had truncate to rounded to knobbed or hooked ends. Their margins varied even at times with the same cell. The various forms of margins noted included the dentate, crenate, undulate and rectilinear types. Their walls were highly lignified and showed numerous branching pore canals.

When sections were gently boiled in chloral hydrate solution, oily globules separated. After draining off the chloral solution and treating the sections with tincture of alkanna diluted with water (equal parts), the oily globules took on a red color.

POWDERED VIBURNUM LENTAGO ROOT BARK.

Grayish brown. Numerous fragments of starch- and crystal-parenchyma with occasional parenchyma cells showing brownish contents; starch grains mostly simple but also 2–5 compound, frequently 3-compound, the simple grains and parts of the compound grains being spher-

oidal, ovate, plano-convex to angularly rounded, from 2 to 24μ in diameter or length with a typically 2-cleft hilum resembling the wings of a bird in flight and showing a distinct polarization cross; numerous fragments of suberous tissue, the cork cells being quadrangular to irregularly polygonal or irregularly brick shaped, their walls being suberized and usually up to 61.4μ occasionally up to 70.8μ in length, their lumina with granular contents; numerous crystals of calcium oxalate of rosette, stellate with pointed rays and rhombohedral shape, frequently up to 35.4μ but occasionally up to 49.46μ (stellate types) or 42.48μ (rhombohedral type); numerous lignified stone cells being of triangular, conical, oblong, circular or fusiform general outline, a number showing varying degrees of crenation, undulation and lobing, their walls being frequently unevenly thickened and lignified and usually up to 43μ in thickness; few sclerenchyma fibres.

POWDERED VIBURNUM LENTAGO STEM BARK.

Grayish brown. Numerous fragments of sclerenchyma fibres or bundles of these, the individual fibres mostly with lignified walls from 3.54μ to 10.62μ thick, the walls being usually of variable width even in the same fibre and often irregularly crenate or dentate on the lumen side, the lumina very irregular and closed in some places in many of the fibres, a number of the fibres showing many transverse septa; numerous stone cells and fragments of groups of these of colorless or pale yellow aspect with walls showing variable degrees of lignification and frequently uneven thickening and with branching pore canals, the individual stone cells of oblong, polygonal, circular, triangular, cuneate, lenticular, ovate or irregular outline with frequently irregularly crenated, toothed or lobed margins; numerous fragments of parenchyma with crystal or starch contents; starch grains considerably fewer than in the root bark collected at the same time from the same plant, simple or 2- to 3-compound, the individual grains spheroidal, ovate, plano-convex to rounded angular in outline, usually about 18μ in diameter or length with a centric (excentric in ovate grains) 2-cleft hilum resembling the wings of a bird in flight and showing a distinct polarization cross under the petrographic microscope; calcium oxalate crystals in rosette aggregates and rhombohedra mostly from 15μ to 35μ in diameter or length; numerous fragments of cork tissue with brownish, polygonal to brick shaped cells with or without adherent parenchyma.

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Reports upon additional chemical studies and upon the pharmacodynamics of this species are to be published as they are completed by the collaborators, who are F. J. Amrhein and J. C. Munch with the author of this paper.

MASSACHUSETTS COLLEGE OF PHARMACY, BOSTON.

THE GERMICIDAL POWERS OF CONSTITUENTS OF ESSENTIAL OILS.

In continuation of work carried out in 1928, investigations have been made to determine the Rideal-Walker coefficients of certain pure constituents of essential oils. Soap emulsions were again employed, and the following are the results obtained: Eugenol, 8.6; thymol (nat.), 20; borneol and santalol, less than 0.1; linalol, 5; geraniol, 7.1; menthol (synth.), 0.9; menthol (nat.), 0.4; citronellal, 3.8; cinnamic aldehyde, 3; citral, 5.2; menthone, 2.25; carvone, 1.5; cineole, 2.2; terpineole, 4; anethole, 0.4; and safrol, 0.3.—E. K. Rideal, A. Sciver, N. E. G. Richardson (*Perf. Record*, 21 (1930), 341–344).—*Jour. & Pharm.*, 72 (1931), 283.

A PHYTOCHEMICAL STUDY OF HYDRASTIS CANADENSIS (GOLDENSEAL).

BY EDWIN GILLIS AND H. A. LANGENHAN.

(*Continued from p. 224, March Issue.*)

COMPARISON OF THE ACID-SOLUBLE ASH CONTENT AND THE ABSOLUTE ALKALOIDAL CONTENT OF THE RHIZOME.

In order to offer a comparison between the acid-soluble ash content and the alkaloidal content, it was necessary to reduce the latter to a comparative basis, *i. e.*, compute the percentage of alkaloid on the drug free from moisture and acid-insoluble ash (sand).

Of the thirty-seven samples of drug observed, twenty-six, or 70 per cent, showed that with every increase or decrease of alkaloidal percentage of rhizome there was a like increase or decrease of percentage of acid-soluble ash.

It is difficult to explain the discrepancies for the abrupt increase of acid-soluble ash in March and September 1929.

TABLE IX.—COMPARISON OF ACID-SOLUBLE ASH CONTENT AND ABSOLUTE ALKALOIDAL CONTENT OF THE RHIZOME.

Stock no.	Age.	Month.	Year.	% sol.-ash rhizome.	% alkaloids rhizome.
1	3	September	1927	2.55	3.44
5	3	September	1927	2.75	3.71
35	3	September	1928	2.37	3.19
32	3	September	1928	2.77	3.63
6	4	September	1927	2.88	4.03
31	4	September	1928	2.51	3.36
2	5	September	1927	2.43	3.54
30	5	September	1928	2.49	3.87
53	5	February	1929	3.18	4.56
52	6	March	1929	3.30	4.54
54	6	March	1929	5.00	4.89
55	6	April	1929	3.30	4.94
56	6	May	1929	2.85	4.79
37	6	June	1928	1.83	3.85
58	6	June	1929	2.31	4.42
60	6	July	1929	2.20	3.99
39	6	August	1928	2.21	3.92
4	6	September	1927	2.44	4.19
3	6	September	1927	2.80	3.95
22	6	September	1927	2.99	3.26
66	6	September	1929	2.37	3.43
67	6	September	1929	2.15	3.34
70	6	September	1929	2.51	4.07
65N	6	September	1929	2.39	3.06
65J	6	September	1929	2.44	3.34
65I	6	September	1929	3.06	4.02
65A	6	September	1929	2.53	3.38
65C	6	September	1929	2.48	3.35
65G	6	September	1929	4.27	3.35
65D	6	September	1929	1.50	4.76
65L	6	September	1929	2.18	3.21
42	6	October	1928	3.67	4.04

72A	6	October	1929	2.68	3.88
72C	6	October	1929	2.86	3.99
48	6	October	1928	2.93	4.60
7	12	September	1927	2.89	3.47
68D	14	September	1929	2.125	2.92
		Maximum		5.00	4.94
		Average		2.71	3.85
		Minimum		1.50	2.92

COMPARISON OF THE ACID-SOLUBLE ASH CONTENT AND THE ABSOLUTE ALKALOIDAL CONTENT OF THE ROOT.

The comments made on the relation of the acid-soluble ash to the absolute alkaloidal content of the rhizome may also be applied to the root. An increase or decrease of alkaloidal content of the root is followed by a like increase or decrease of acid-soluble ash content in approximately seven out of ten of the assays included in Table X.

However, it is quite readily seen that the variation of acid-soluble ash for either rhizome or root is quite erratic. Unfortunately, porcelain crucibles were used for ash determinations. After noting the irregularities of the results, the crucibles were examined. The conclusion was that these may have contributed to the irregularities because of their condition.

TABLE X.—COMPARISON OF THE ACID-SOLUBLE ASH CONTENT AND THE ABSOLUTE ALKALOIDAL CONTENT OF THE ROOT.

Stock no.	Age.	Month.	Year.	Acid-sol. root.	Absol. assay root.
33	2	September	1928	4.30	2.33
1	3	September	1927	4.78	2.67
5	3	September	1927	2.23	2.70
35	3	September	1928	4.26	2.48
32	3	September	1928	4.11	2.35
6	4	September	1927	5.09	2.91
31	4	September	1928	4.32	2.20
2	5	September	1927	4.02	2.93
30	5	September	1928	2.69	2.37
53	6	February	1929	5.69	2.77
52	6	March	1929	5.59	2.77
54	6	March	1929	6.02	3.28
55	6	April	1929	6.48	3.44
56	6	May	1929	4.94	3.20
36	6	May	1928	4.76	3.52
37	6	June	1928	3.13	2.36
58	6	June	1929	4.18	3.31
60	6	July	1929	3.80	2.73
39	6	August	1928	2.91	2.39
4	6	September	1927	4.90	2.93
3	6	September	1927	3.88	3.02
22	6	September	1927	4.63	2.63
28	6	September	1928	4.54	2.29
66	6	September	1929	4.20	2.38
67	6	September	1929	3.65	2.41
70	6	September	1929	3.74	2.96
65N	6	September	1929	3.44	2.50
65J	6	September	1929	3.51	2.25

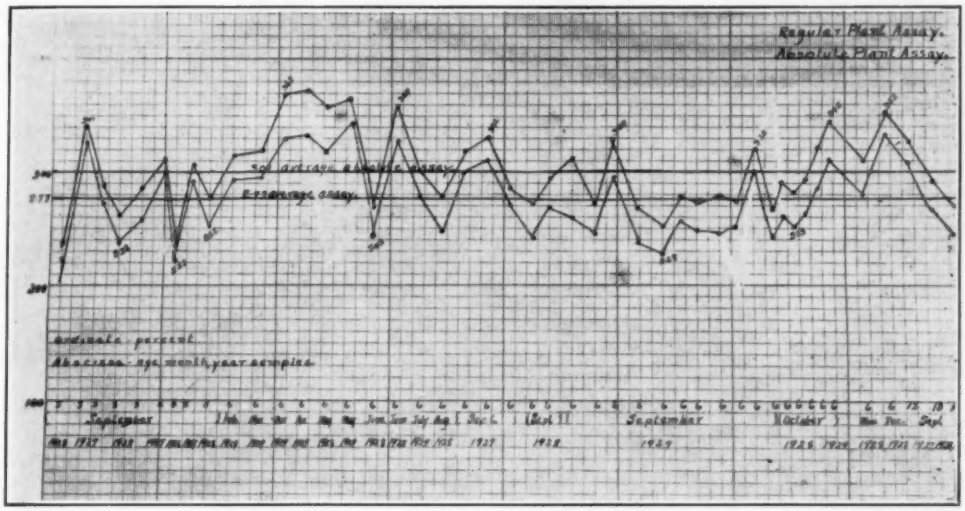


Chart 8.—A comparison of United States Pharmacopœia and absolute assays (Tables VI and VII combined).

	Rhizome.	Root.
Maximum	3.45	3.73
Average	2.82	3.01
Minimum	2.22	2.34

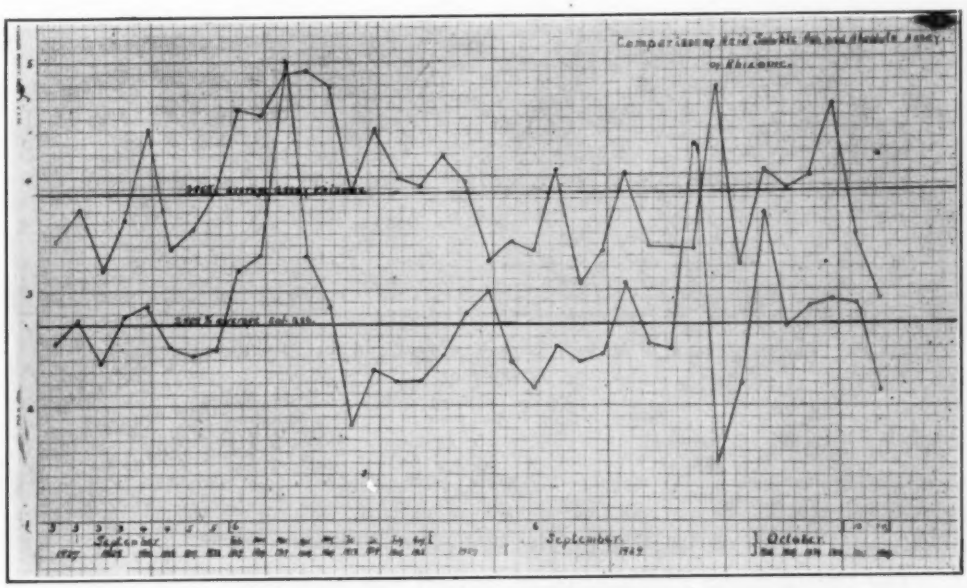


Chart 9.—Comparison of acid-soluble ash content and absolute alkaloidal content of the rhizome.

	Rhizome.	Root.
Maximum	5.00	4.94
Average	2.71	3.85
Minimum	1.50	2.92

65I	6	September	1929	4.93	2.37
65A	6	September	1929	3.90	2.52
65C	6	September	1929	4.03	2.27
65G	6	September	1929	4.27	2.51
65D	6	September	1929	4.45	2.97
65L	6	September	1929	3.35	2.41
42	6	September	1928	2.44	2.73
72A	6	October	1929	4.15	2.92
72C	6	October	1929	5.04	3.23
48	6	December	1928	4.60	3.25
7	12	September	1927	3.13	3.11
68D	14	September	1929	3.76	2.30
		Maximum		5.09	3.44
		Average		4.20	2.72
		Minimum		2.44	2.20

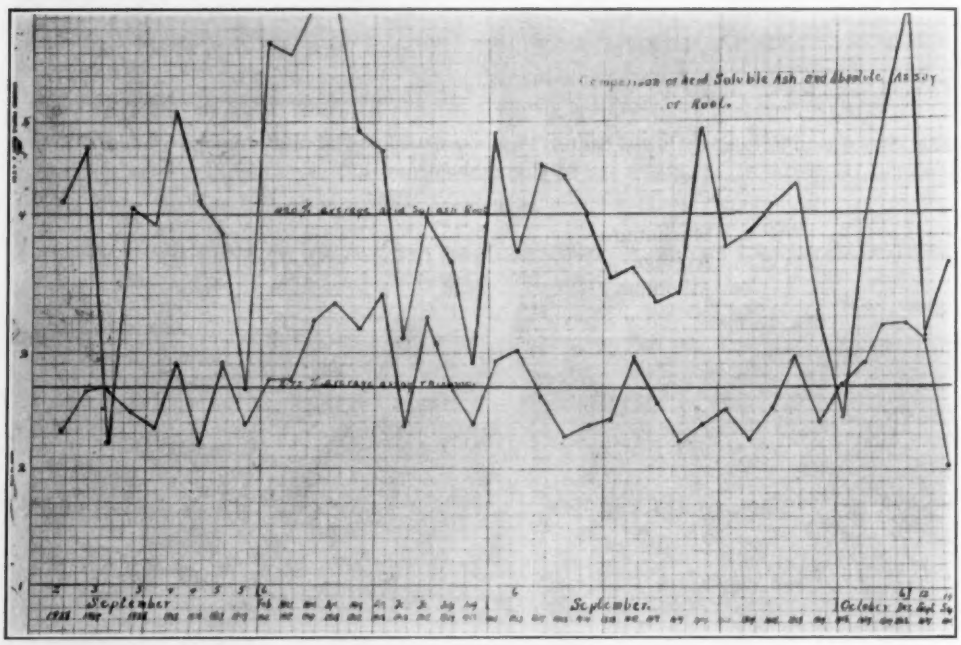


Chart 10.—The comparison of acid-soluble ash content and the absolute alkaloidal content of the root.

	Acid-sol. ash-root.	Absolute assay-root.
Maximum	5.09	3.44
Average	4.20	2.72
Minimum	2.44	2.20

APPROXIMATE ASSAYS OF NON-ALKALOIDAL CONSTITUENTS—MOISTURE CONTENT.

The United States Pharmacopœial method was employed.

Ten grams of the ground drug were weighed in a tared vessel. It was dried at a temperature of 100° C. for five hours and weighed. The drying and weighing were continued until the loss was not more than 0.25 per cent in one hour.

Average moisture content for rhizome was 7.64%
Average moisture content for root was 7.93%

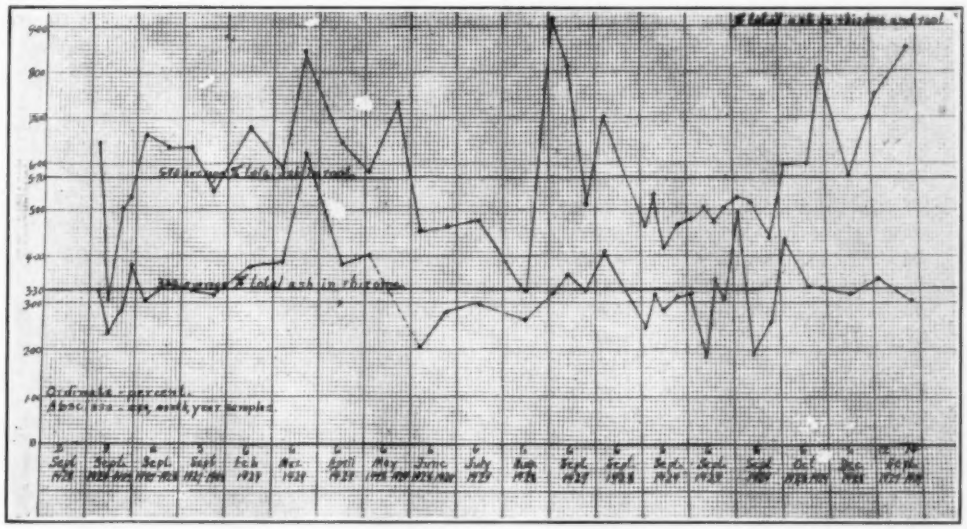


Chart 11.—Percentage of total ash in rhizome and root.

	Total ash, rhizome.	Total ash, root.
Maximum	6.25	8.50
Average	3.30	5.70
Minimum	1.84	4.19

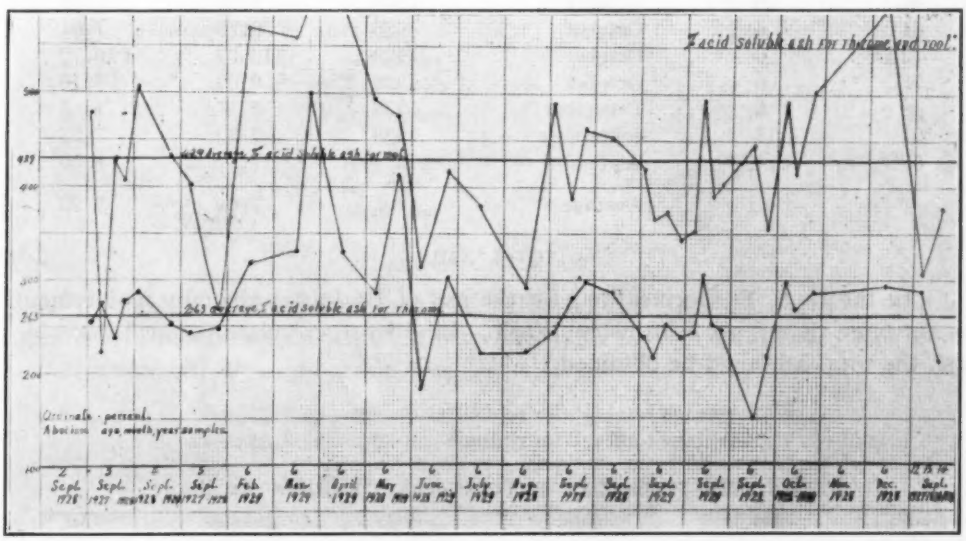


Chart 12.—Percentage acid-soluble ash.

	Acid-sol. ash-rhizome.	Acid-sol. ash-root.
Maximum	5.00	5.97
Average	2.63	4.29
Minimum	1.50	2.69

TABLE XI.—MOISTURE CONTENT.

Stock no.	Age.	Month.	Year.	% moisture, rhizome.	% moisture, root.
35	3	September	1928	7.81	8.51
32	3	September	1928	6.99	7.35
31	4	September	1928	7.71	8.06
30	5	September	1928	7.08	8.06
53	6	February	1929	7.07	7.17
52	6	March	1929	7.95	7.06
54	6	March	1929	7.94	8.05
55	6	April	1929	8.33	6.80
56	6	May	1929	7.78	8.12
37	6	June	1928	8.79	8.20
58	6	June	1929	8.65	9.07
60	6	July	1929	5.41	6.37
39	6	August	1928	8.48	9.28
26	6	September	1928	7.09	7.49
67	6	September	1929	10.28	8.79
66	6	September	1929	6.30	8.03
70	6	September	1929	8.29	11.57
65N	6	September	1929	7.69	10.63
65J	6	September	1929	7.69	8.39
65I	6	September	1929	6.40	9.08
65A	6	September	1929	9.55	7.64
65C	6	September	1929	5.38	4.38
65G	6	September	1929	8.05	6.43
65D	6	September	1929	6.62	5.32
65L	6	September	1929	7.10	8.24
40	6	October	1928	7.58	7.59
41	6	October	1928	6.76	7.91
72A	6	October	1929	10.23	10.70
72C	6	October	1929	9.02	7.19
48	6	December	1928	5.17	8.45
27	13	September	1928	7.20	7.22
68D	14	September	1929	7.87	8.50
		Average		7.64	7.93

TOTAL ASH.

In the U. S. P. specifications for the ash of Hydrastis, the only requirement is not more than 3 per cent insoluble ash. In order to calculate the acid-insoluble ash the total ash must be obtained.

Average total ash for root	5.7%
Average total ash for rhizome	3.3%

TABLE XII.—PERCENTAGE OF TOTAL ASH IN RHIZOME AND ROOT.

Stock no.	Age.	Month.	Year.	Rhizome.	Root.
33	2	September	1928		5.33
1	3	September	1927	3.29	6.45
5	3	September	1927	2.90	3.06
35	3	September	1928	2.81	5.13
32	3	September	1928	3.82	5.28
6	4	September	1927	3.03	6.65
31	4	September	1928	3.40	6.36

2	5	September	1927	3.28	6.35
30	5	September	1928	3.16	5.38
53	6	February	1929	3.76	6.78
52	6	March	1929	3.87	5.88
54	6	March	1929	6.25	8.45
55	6	April	1929	3.82	6.48
56	6	May	1929	4.02	5.83
36	6	May	1928		7.35
37	6	June	1928	2.12	4.55
58	6	June	1929	2.80	4.61
60	6	July	1929	2.97	4.75
39	6	August	1928	2.62	3.25
4	6	September	1927	3.20	9.18
3	6	September	1927	3.60	8.12
22	6	September	1927	3.26	5.10
28	6	September	1928	4.10	7.00
29	6	September	1928		7.41
67	6	September	1929	2.47	4.63
66	6	September	1929	3.15	5.30
70	6	September	1929	2.82	4.19
65N	6	September	1929	3.11	4.66
65J	6	September	1929	3.20	4.79
65I	6	September	1929	1.84	5.07
65A	6	September	1929	3.50	4.72
65C	6	September	1929	3.08	5.03
65C	6	September	1929	4.95	5.25
65L	6	September	1929	2.57	4.39
41	6	October	1928	4.33	5.96
72A	6	October	1929	3.30	5.95
72C	6	October	1929	3.39	8.09
48	6	December	1929	3.18	5.70
7	12	September	1927	3.55	7.50
68D	14	September	1929	3.05	8.51
		Maximum		6.25	8.50
		Average		3.30	5.70
		Minimum		1.84	4.19

ACID-SOLUBLE ASH.

Two grams of drug were ashed according to the U. S. P. method. The insoluble ash obtained was deducted from the value for the total ash. The difference represented the acid-soluble ash.

Average acid-soluble ash for root	4.29%
Average acid-soluble ash for rhizome	2.63%

TABLE XIII.—PERCENTAGE ACID-SOLUBLE ASH.

Stock no.	Age.	Month.	Year.	Rhizome.	Root.
33	2	September	1928		4.30
1	3	September	1927	2.55	4.78
5	3	September	1927	2.75	2.23
35	3	September	1928	2.37	4.26
32	3	September	1928	2.77	4.11
6	4	September	1927	2.88	5.09
31	4	September	1928	2.51	4.32
2	5	September	1927	2.43	4.02

Table XIII.—*Concluded.*

Stock no.	Age.	Month.	Year.	Rhizome.	Root.
30	5	September	1928	2.49	2.69
53	6	February	1929	3.18	5.69
52	6	March	1929	3.30	5.59
54	6	March	1929	5.00	6.02
55	6	April	1929	3.30	6.48
56	6	May	1929	2.85	4.94
36	6	May	1928	4.14	4.76
37	6	June	1928	1.83	3.13
58	6	June	1929	2.31	4.18
60	6	July	1929	2.20	3.80
39	6	August	1928	2.21	2.91
4	6	September	1927	2.44	4.90
3	6	September	1927	2.80	3.88
22	6	September	1927	2.99	4.63
28	6	September	1928	2.87	4.54
66	6	September	1929	2.37	4.20
67	6	September	1929	2.15	3.65
70	6	September	1929	2.51	3.74
65N	6	September	1929	2.39	3.44
65J	6	September	1929	2.44	3.51
65I	6	September	1929	3.06	4.93
65A	6	September	1929	2.53	3.90
65C	6	September	1929	2.48	4.03
65G	6	September	1929	4.27	4.27
65D	6	September	1929	1.50	4.45
65L	6	September	1929	2.18	3.35
41	6	October	1928	2.97	4.91
72A	6	October	1929	2.68	4.15
72C	6	October	1929	2.86	5.04
48	6	December	1928	2.93	5.97
7	12	September	1927	2.89	3.13
68DB	14	September	1929	2.125	3.76
42	6	October	1928	3.67	2.44
		Maximum		5.00	5.97
		Average		2.63	4.29
		Minimum		1.50	2.69

ACID-INSOLUBLE ASH.

The U. S. P. method was employed.

Boil the ash obtained from two Gm. of drug with 25 cc. of dilute hydrochloric acid for 5 minutes, collect the insoluble matter in an ashless filter, wash with hot distilled water, ignite and weigh.

Average acid-insoluble ash for root	0.68%
Average acid-insoluble ash for rhizome	1.39%

The U. S. P. limits the acid insoluble for hydrastis to not more than 3 per cent.

TABLE XIV.—PERCENTAGE OF ACID-INSOLUBLE ASH.

Stock no.	Age.	Month.	Year.	Rhizome.	Root.
33	2	September	1928		0.93
1	3	September	1927	0.74	1.67
5	3	September	1927	0.15	0.83
35	3	September	1928	0.44	0.87

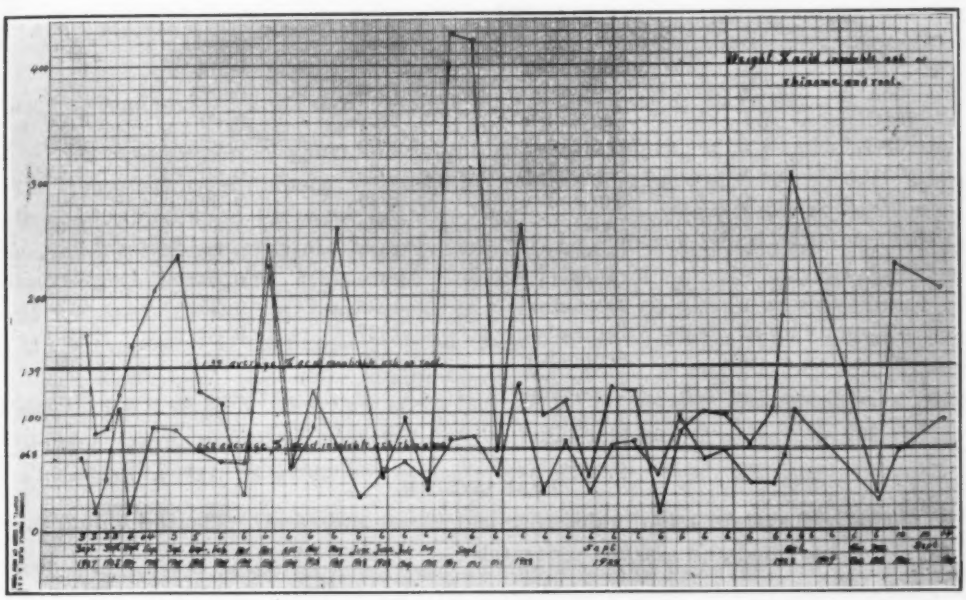


Chart 13.—Percentage of acid-insoluble ash.

	Acid-insol. ash rhizome.	Acid-insol. ash root.
Maximum	2.25	4.28
Average	.68	1.39
Minimum	.15	.15

TABLE XIV.—*Continued.*

Stock no.	Age.	Month.	Year.	Rhizome.	Root.
36	3	September	1928	1.05	1.16
6	4	September	1927	0.15	1.56
31	4	September	1928	0.89	2.05
2	5	September	1927	0.85	2.33
30	5	September	1928	0.67	1.19
53	6	February	1929	0.58	1.09
52	6	March	1929	0.57	0.30
54	6	March	1929	2.25	2.43
55	6	April	1929	0.52	0.53
56	6	May	1929	1.17	0.88
36	6	May	1928		2.59
37	6	June	1928	0.29	1.42
58	6	June	1929	0.49	0.44
60	6	July	1929	0.57	0.95
39	6	August	1928	0.41	0.34
4	6	September	1927	0.76	4.28
3	6	September	1927	0.80	4.22
22	6	September	1927	0.47	0.66
28	6	September	1928	1.23	2.46
67	6	September	1929	0.325	0.975
66	6	September	1929	0.775	1.10
70	6	September	1929	0.313	0.45
65N	6	September	1929	0.725	1.23
65J	6	September	1929	0.765	1.285

TABLE XIV.—*Concluded.*

Stock no.	Age.	Month.	Year.	Rhizome.	Root.
65I	6	September	1929	0.49	0.15
65A	6	September	1929	0.975	0.82
65C	6	September	1929	0.60	1.00
65G	6	September	1929	0.675	0.98
65D	6	September	1929	0.40	0.735
65L	6	September	1929	0.39	1.04
41	6	October	1929	1.36	1.05
72A	6	October	1929	0.62	1.83
72C	6	October	1929	0.524	3.05
48	6	December	1928	0.25	0.33
7	12	September	1927	0.66	2.37
68D	14	September	1929	0.925	2.05
		Maximum		2.25	4.28
		Average		0.68	1.39
		Minimum		0.15	0.15

LEAF SYSTEM.

The leaf system was divided into leaf tissue and stem. The individual portions were weighed and assayed separately.

Stock no.	Month.	Year.	Wt. %, stem.	Wt. %, leaf.	Assay stem.	Assay leaf.	Absolute assay.
36	May	1928	40.0	60.0	0.88	1.80	1.65
37	June	1928	45.5	54.5	0.33	1.60	1.13
44	Aug.	1928	46.9	53.1	0.34	1.32	0.93
45	Sept.	1928	30.0	70.0	0.33	1.45	1.20
56	May	1929	37.7	62.3	0.71	2.19	1.80
58	June	1929	28.4	71.6	0.64	1.84	1.65
60	July	1929	41.4	58.6	0.41	1.44	1.09
63	Sept.	1929	38.6	61.4	0.43	1.59	1.27

The average weight percentage of stem	37.6%
The average weight percentage of leaf tissue	61.4%
The average assay of stem	0.51%
The average assay of leaf tissue	1.65%
The average absolute assay	1.34%

GOVERNMENT SUPERVISION OF PLANT CULTIVATION IN ITALY.

The Italian Minister of Agriculture and Forests has recently published a decree, the purpose of which is to control and stimulate the cultivation of medicinal plants. The decree makes it obligatory that those engaging in the cultivation and processing of medicinal plants be certified horticulturists. The sale of such plants is reserved entirely to pharmacists having a degree in horticulture. A central committee of official horticulturists under the supervision of the Minister of Agriculture has been created to supervise activities in connection with plant cultivation. A fund of 500,000 lire has been established to carry on this mark. (Trade Commissioner Elizabeth Humes, Rome.)

DRUG COÖPERATIVE MOVEMENT IN PORTO RICO.

A coöperative movement among the drug importers and dealers in Porto Rico has taken the name of Sociedad Coöperative Farmaceutica de Puerto Rico. Members pay to the Society a 10 per cent commission on their purchases. From this fund operating expenses are paid and any balance at the end of the year is returned to the members, prorated according to their purchases. Membership is obtained by purchasing a share of stock, par value $100, which may be bought on installments. A member may buy through the Society on credit, up to the amount he has paid on his share. All other transactions are strictly cash. The Society is reported to have at present 167 members. (Trade Commissioner J. R. McKey, San Juan.)

THE OCCURRENCE OF METHYLBENZYLAMINE IN THE EXTRACT OF MA HUANG.

BY A. LING CHEN, ELMER H. STUART AND K. K. CHEN.

Since the report of Chen and Schmidt (1) on *l*-ephedrine, a base isolated from the Chinese drug Ma Huang, several other amines closely related to ephedrine have been obtained from the same plant. Thus Chou (2) reported the separation of *d*-pseudoephedrine from Ma Huang, Smith (3, 4) that of nor-*d*-pseudoephedrine and *l*-methylephedrine, Nagai and Kanao (5) that of *d*-methylpseudoephedrine, and Kanao (6) that of *l*-nor-ephedrine. In our examination of the extract of Ma Huang after the removal of *l*-ephedrine, we found a base that boils at a low temperature and forms salts not identical with those of any base of Ma Huang heretofore described. Further study revealed that it is a new subsidiary base and has the formula and properties of methylbenzylamine, $C_6H_5.CH_2.NH(CH_3)$. This report covers our chemical and pharmacological data.

ISOLATION AND IDENTIFICATION OF METHYLBENZYLAMINE.

The extract of Ma Huang, freed as completely as possible from *l*-ephedrine, was made definitely alkaline with potassium hydroxide and vigorously shaken with ether. The residue remaining after the removal of ether from the ethereal layer was distilled under diminished pressure. The portion that distilled over below the boiling point of *d*-pseudoephedrine contained the base in question. The yield was small as compared with that of *l*-ephedrine and *d*-pseudoephedrine, but by working with a large quantity of crude material, a sufficient amount of the base was obtained for this investigation. The base is an oil and forms a hydrochloride with dilute hydrochloric acid in the cold. *Methylbenzylamine hydrochloride*, freed from impurities, crystallizes from an alcohol-ether mixture in fine plates, melting point 175–6° C. (uncorrected), or 180.5° C. (corrected). Emde (7) gave the melting point 174–5° C. It is easily soluble in water, alcohol and chloroform; only slightly soluble in ether, acetone and petroleum ether. Its aqueous solution shows no specific rotation. The hydrochloride of methylbenzylamine yields positive secondary amine reactions, such as the benzene-sulphonyl chloride test and the Simon's test.[1] It is oxidized by an alkaline permanganate solution giving rise to an odor of benzaldehyde. An ether extract of the acidified solution of the oxidized product gives a solid, which when sublimed at 80° C., shows the characteristic crystals of benzoic acid. These crystals melt at 120–121° C. (corrected) and form a flesh-colored precipitate with a solution of ferric chloride.

For analysis, the hydrochloride was dried over H_2SO_4.

4.228 mg. substance: 0.383 cc. N at 33° and 745.4 mm. (micro-Kjeldahl).
3.863 mg. substance: 0.333 cc. N at 33° and 745.4 mm.
3.097 mg. substance: 0.279 cc. N at 33.5° and 744.4 mm.
2.464 mg. substance: 0.217 cc. N at 35° and 744.4 mm.

100.0 mg. substance: 22.31 mg. Cl (Volhard).[2]
100.0 mg. substance: 22.22 mg. Cl.

[1] We are indebted to Dr. Harold W. Coles for his assistance in making the tests.

[2] We are indebted to Mr. Robert M. Lingle for his assistance in making the determinations.

$C_6H_5.CH_2.NH(CH_3).HCl$	Calculated	N 8.88,	Cl 22.50
	Found	N 9.146	
	Found	N 8.665	
	Found	N 9.026	
	Found	N 8.734	
	Found		Cl 22.31
	Found		Cl 22.22

Methylbenzylamine aurichloride can be prepared by adding a solution of auric chloride in dilute hydrochloric acid to an aqueous solution of methylbenzylamine hydrochloride. The golden-yellow precipitate after drying over H_2SO_4 melted at 136–138° C. (uncorrected), or 139–140° C. (corrected). Emde (7) gave the melting point 138° C. *Methylbenzylamine platinichloride*, prepared by the addition of a 10 per cent solution of chloroplatinic acid to an aqueous solution of the base, forms yellow crystals, melting point 192° C. (uncorrected), or 194–195° C. (corrected). Previously reported values for this double salt are 193° C. by Hinsberg (8) and 197° C. by Emde (7).

A portion of the impure base was used for the preparation of several salts by neutralization with their respective acids. With the exception of the sulphate, they appear to be reported for the first time. They gave the following properties:

Methylbenzylamine sulphate crystallized in plates from a mixture of alcohol and acetone. After drying at 105° C., it melted at 144.2° C. (corrected), the melted material becoming a transparent homogeneous mass upon cooling. It is neutral to litmus, hygroscopic, soluble in water and alcohol; only very slightly soluble in ether and acetone.

Methylbenzylamine nitrate crystallized in stout prisms from a mixture of alcohol and ether. After drying at 65° C., it melted at 86.5° C. (corrected). It is soluble in water, alcohol, chloroform and acetone; only very slightly soluble in ether and petroleum ether.

Methylbenzylamine phosphate crystallized in stout prisms from a mixture of alcohol and ether. After drying at 105° C., it melted at 162.5° C. (corrected). This salt contains water of crystallization and it melts at a lower temperature if it is not dehydrated. It is very soluble in water, soluble in alcohol; only slightly soluble in chloroform, acetone, ether and petroleum ether. The aqueous solution is acid to litmus.

Methylbenzylamine oxalate crystallized in angular plates from a mixture of alcohol and ether. After drying at 105° C., it melted at 200.5–201° C. (corrected). It is soluble in water and alcohol; only very slightly soluble in ether, chloroform, acetone and petroleum ether. Its aqueous solution is neutral to litmus.

PHARMACOLOGICAL ACTION OF METHYLBENZYLAMINE AND ITS COMPARISON WITH THAT OF BENZYLAMINE.

Since little information is available concerning the physiological activity of methylbenzylamine, we made a study of its general effects. *A priori*, the compound should possess some sympathomimetic action. The primary amine, benzylamine, was briefly investigated by Barger and Dale (9), and is considered to have a mere trace of sympathomimetic action. We prepared the hydrochloride of benzylamine

(melting point 262.5° C., corrected) from the pure base obtained commercially, and compared its action wherever possible with that of methylbenzylamine.

a. Action on Blood Pressure.—In anesthetized cats, methylbenzylamine as the hydrochloride given intravenously in the dosage of 3 to 3.5 mg. per Kg. raises the arterial blood pressure. Repeated injections do not rapidly diminish the pressor response like ephedrine. Larger doses, say seven or more mg. per Kg. given at once, however, lower the pressure, with complete recovery to the initial level within a short time unless very large doses (35 or more mg. per Kg.) are administered. The blood-pressure raising property of methylbenzylamine is better demonstrated in pithed cats which can tolerate also slightly larger doses (six mg. per Kg.) without showing any depressor action.

The pressor action of methylbenzylamine is much less powerful than that of ephedrine and nor-ephedrine. This is to be expected because the side chain has only one C-atom. When compared equimolecularly with benzylamine, methylbenzylamine was shown to differ only slightly from the primary amine (Fig. 1). In nine observations with six pithed cats the rise of blood pressure was slightly greater after methylbenzylamine than after benzylamine in seven cases and *vice versa* twice. The average difference in the nine determinations with the two compounds was found to be 3.4 mm. Hg in favor of methylbenzylamine, a deviation too small to be considered significant. This is of special interest, for, among the sympathomimetic amines a methylamino-base is usually weaker than the corresponding amino-base, as shown by the work of Barger and Dale (9) and Chen, Wu and Henriksen (10). Only in a few instances is a methylamino-derivative equally active as, or actually stronger than, the amino-base. The following examples may be cited for comparison with regard to their pharmacological action.

Fig. 1.—Comparison of pressor action between benzylamine and methylbenzylamine. Cat, female, 2.5 Kg., decerebrated and pithed, double vagotomy, artificial respiration, left carotid pressure. The drugs were both injected intravenously. Maximal rise after benzylamine 25 mm. Hg, and that after methylbenzylamine 29 mm. Hg.

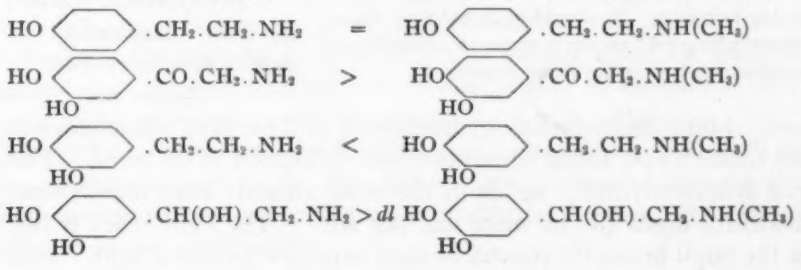
$(CH_3)_2.CH.CH_2.CH_2.NH_2 > (CH_3)_2.CH.CH_2.CH_2.NH(CH_3)$

$C_6H_5.CH_2.CH_2.NH_2 = C_6H_5.CH_2.CH_2.NH(CH_3)$

$C_6H_5.CH(OH).CH_2.NH_2 > C_6H_5.CH(OH).CH_2.NH(CH_3)$

dl $C_6H_5.CH(OH).CH(CH_3).NH_2 >$ *dl* $C_6H_5.CH(OH).CH(CH_3).NH(CH_3)$

dl $C_6H_5.CH(OH).CH(C_2H_5).NH_2 >$ *d l* $C_6H_5.CH(OH).CH(C_2H_5).NH(CH_3)$



b. Action on the Heart.—Methylbenzylamine hydrochloride with different concentrations was perfused through the frog's heart by way of the inferior vena cava according to the method of Howell and Cooke (11) and by means of the Greene cannula (12). Little effect was observed with dilute solutions. A concentration of 1:1,000 produces a transient depression of the rate and amplitude of contraction, which disappears if the drug solution is replaced by the normal Ringer's fluid. Almost identical results were obtained with benzylamine hydrochloride.

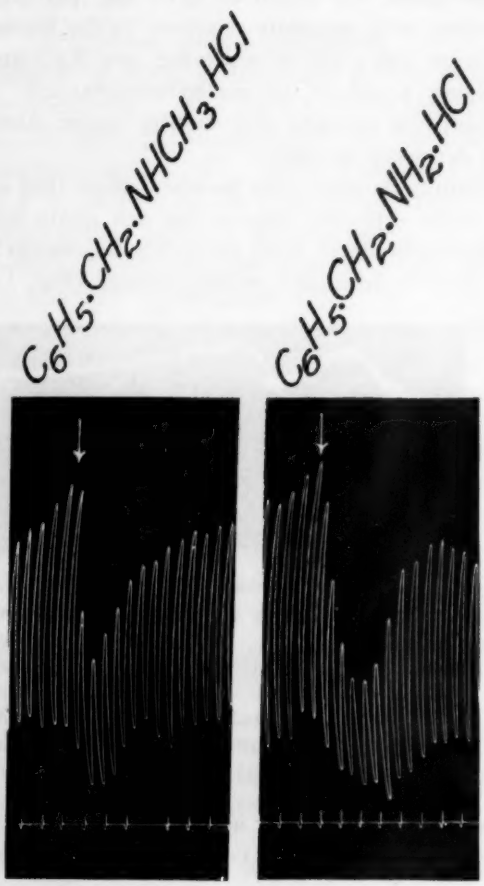


Fig. 2.—Comparison of action of benzylamine and methylbenzylamine on the isolated rabbit's small intestine. A strip was suspended in 50 cc. of Locke's solution maintained at 38° C. At each arrow, 0.5 cc. of a M/10 solution of the drug (as labeled) was added. There was a washing out between the two tests. It should be noted that there was practically no difference in response (inhibition) to benzylamine and methylbenzylamine.

In four cats, myocardiograms were made with intravenous injections of methylbenzylamine hydrochloride. They uniformly showed that pressor doses increased the contractility of the heart muscle, while larger doses which lowered the blood pressure caused a decrease in amplitude of the contraction. Since methylbenzylamine has only a slight action on the blood vessels (see below), the changes in blood pressure appear to be chiefly due to the alteration of the cardiac contraction. Electrocardiograms were obtained on two other cats with methylbenzylamine hydrochloride in large doses (12–23 mg. per Kg.) given intravenously. They illustrated no unusual changes except some exaggeration of the T wave during the fall of blood pressure. The pulse rate was observed in each experiment by either inspection or electrocardiogram. Pressor doses usually caused acceleration, but large doses lowering the blood pressure resulted in temporary slowing of the heart rate.

Benzylamine studied parallelly on the mammalian heart gave closely similar results.

c. Action on Smooth Muscle Organs.—Methylbenzylamine hydrochloride in 1 per cent solution upon instillation in the rabbit's eye, failed to produce any dilatation of the pupil. There is, however, a definite mydriatic action in the same animals after intravenous injections of moderate doses (30 or more mg. per Kg.). The light reflex is not abolished since the pupil promptly constricts upon exposure to strong light. Practically the

same result was obtained with benzylamine. The lack of a hydroxyl group on the α-C-atom from the benzene ring is possibly responsible for the absence of mydriatic action by local application as previously suggested by Chen, Wu and Henriksen (10).

In anesthetized dogs whose kidney volume was recorded, an intravenous injection of methylbenzylamine hydrochloride in the dosage of 4.5 mg. per Kg. resulted in slight constriction of the renal vessels during the rise of blood pressure. The vascoconstricting action of methylbenzylamine is therefore appreciable.

Nineteen strips of the isolated rabbit's small intestine were immersed in Locke's solution maintained at 38° C., and studied by the addition of methylbenzylamine hydrochloride in the concentrations of from 1:10,000 to 1:2,500. In 32 observations, relaxation occurred 15 times, increase in the tonus of contraction 12 times, and increase in the strength of contraction followed by relaxation 5 times. In several experiments, methylbenzylamine was compared with benzylamine in equimolecular concentrations. The response was found to be the same with either drug as shown in Fig. 2.

A similar study was made with four strips of the isolated rabbit's uteri. In nine observations the tonus of the contraction was uniformly increased, although to a small extent. The concentration of methylbenzylamine hydrochloride varied from 1:20,000 to 1:2,500. The action of benzylamine proved to be about the same as that of methylbenzylamine when compared equimolecularly.

We made no attempt to determine precisely the site of action of methylbenzylamine. Since, however, it produces physiological effects similar to, but to a much less degree than, Beta-phenylethylamine and its derivatives, it seems justifiable to call methylbenzylamine a sympathomimetic amine.

d. Toxicity.—In a series of 17 frogs, methylbenzylamine hydrochloride was injected into the anterior lymph sac in a dosage varying from 250 to 1,000 mg. per Kg. The M. L. D. was not precisely determined, but it was found to lie between 500 and 750 mg. per Kg. The chief toxic symptoms are clonic convulsions followed by depression and flaccid paralysis. These convulsions disappear after the medulla, but not after the cerebrum, is destroyed. The point of action is therefore at the upper spinal cord. When the frog has apparently died, autopsy often shows the heart beating very slowly, or that it stops at diastole.

Methylbenzylamine hydrochloride was given intravenously to two rabbits in the dosage of 50 mg. per Kg. Both recovered completely. The symptoms observed were dilatation of the pupils, weakness in the hind legs and fibrillatory movements of the voluntary muscles.

In white rats, benzylamine and methylbenzylamine were parallelly compared by the determination of their M. L. D. as shown in Table I; that for benzylamine hydrochloride being 200, and that for methylbenzylamine hydrochloride 215 mg. per Kg. Methylbenzylamine is slightly less toxic than benzylamine. The toxic symptoms are practically the same with either compound. They consist of dilatation of the pupils, weakness in the legs, clonic convulsions and gasping for air. Death usually occurs within four or five minutes after fatal doses. Recovery from sublethal doses is always complete.

COMMENT.

We have been mindful that methylbenzylamine might be a product of the decomposition of ephedrine during the process of extraction. The formation of methylbenzylamine from ephedrine, however, would involve strenuous oxidation and reduction, and subsequent methylation, according to the usual chemical reactions; and since our method of extraction does not require strong oxidizing or reducing agents, decomposition does not seem probable. Recently, Moore and Moore (13) showed the conversion of ephedrine base (not its salts) to benzal-ephedrine upon exposure to strong sunlight or by the addition of hydrogen peroxide. Our extract was not submitted to similar treatments, and furthermore our compound is not benzal-ephedrine but methylbenzylamine. Unless new evidence arises to prove the contrary, it must be concluded that methylbenzylamine is a normal constituent of Ma Huang.

SUMMARY.

1. Methylbenzylamine has been isolated, and identified as such, from the extract of Ma Huang. Several salts and derivatives of this base have been prepared and described.

2. A pharmacological study of methylbenzylamine has been made.

3. Compared with benzylamine, methylbenzylamine has practically the same physiological activity. The latter is slightly less toxic.

It is our special pleasure to acknowledge our indebtedness to Mr. Horace A. Shonle for his assistance in the virtual identification of our compound.

TABLE I.—TOXICITY OF BENZYLAMINE AND METHYLBENZYLAMINE IN WHITE RATS BY INTRAVENOUS INJECTION.

Hydrochloride of	Dose in mg. per Kg.	Number of rats used.	Number died.	Number survived.	M. L. D. in mg. per Kg.
Benzylamine	190	3	0	3	
	195	4	1	3	200
	200	5	3	2	
Methylbenzylamine	205	3	0	3	
	210	5	2	3	215
	215	4	3	1	

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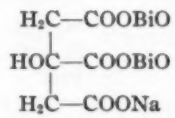
LILLY RESEARCH LABORATORIES,
ELI LILLY & COMPANY, INDIANAPOLIS.

ON THE PHYSICO-CHEMICAL PROPERTIES OF SOLUTIONS OF DIBISMUTHYL MONOSODIUM CITRATE IN ETHYLENEGLYCOL.*

BY W. F. VON OETTINGEN.

P. Hanzlik recently advocated the use of ethyleneglycol as a solvent and vehicle for bismuth compounds, and for this reason it was attempted to use also as a solvent for dibismuthyl monosodium citrate. This compound is prepared as an anhydride of the formula



which, as such, is insoluble in water and in ethyleneglycol. The hydrate is, however, soluble in both solvents and can be diluted ad libidum. Because it is known that bismuth salts may form compounds with glycerol and different sugars, it appeared possible that a similar compound was also formed with ethyleneglycol.

The freshly precipitated moist hydrate of dibismuthyl monosodium citrate was therefore divided in two portions, one (*a*) was dried as usual, the other (*b*) was dissolved in ethyleneglycol, and the bismuth compound precipitated by means of acetone. After settling (preferably in the icebox), the precipitate was filtered off, washed with acetone, alcohol and ether and dried. The dried material represents a white amorphous powder, freely soluble in water. It does not dissolve in ethyleneglycol directly, but does so freely after hydration. Both samples were analyzed, and showed the same bismuth content:

(*a*) Substance: 0.4763 Bi_2S_3 0.3772 64.3 per cent Bi
(*b*) Substance: 0.4697 Bi_2S_3 0.3711 64.1 per cent Bi

The theoretical bismuth content for dibismuthyl monosodium citrate is 63.0 per cent bismuth, while the hypothetical compound of the type

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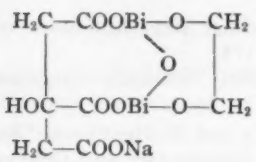
* From the Department of Pharmacology of the School of Medicine of Western Reserve University, Cleveland, Ohio.



should contain 59.9 per cent bismuth. From the comparison of these two analyses it appears that both preparations are identical, and that ethylene glycol does not form a compound with the bismuth sodium citrate.

Next, the effect of temperature, hydrogen-ion concentration, and of cathions and anions was studied, using 2.5 per cent solution of dibismuthyl monosodium citrate in water and in ethyleneglycol. The p_H of the aqueous solution was 7.6, that of the solution in ethyleneglycol was 8.2.

(*a*) *Effect of Heat.*—Ten cubic centimeters of both solutions, with addition of 0.5 cc. of phenol red solution (0.04 per cent) were placed in test-tubes, which were then sealed. Three tubes of each solution were placed in a beaker and heated for one-half, one and one and a half hour to 50, 100 and 150° C.

TABLE I.—EFFECT OF HEAT ON 2.5 PER CENT SOLUTIONS OF DIBISMUTHYL MONOSODIUM CITRATE IN ETHYLENEGLYCOL AND WATER.

		Aqueous Solution.		Ethyleneglycol.	
Temp.	Time.	p_H.	Prec.	p_H.	Prec.
50	30	7.6	No	8.2	No
	60	7.6	No	8.2	No
	90	7.6	No	8.2	No
100	30	7.3	Sl. turb.	8.2	No
	60	7.3	Sl. turb.	8.2	No
	90	7.3	Sl. turb.	8.2	No
150	30	7.2	Prec.	8.0	Prec.

Table I shows that the ethyleneglycol solution is somewhat more stable than the aqueous solution, remaining clear with heating to 100° C., for one and a half hour, under which conditions the aqueous solution shows a slight turbidity, and also a decrease of p_H from 7.6–7.3.

(*b*) *Effect of the Hydrogen-Ion Concentration.*—Ten cubic centimeters of the 2.5 per cent solutions of bismuth sodium citrate in water and in ethyleneglycol, with 0.5 cc. of phenol red solution were placed in test-tubes, and the p_H was ad-

TABLE II.—EFFECT OF HYDROGEN-ION CONCENTRATION ON 2.5 PER CENT SOLUTION OF DIBISMUTHYL MONOSODIUM CITRATE IN WATER AND IN ETHYLENEGLYCOL.

	Aqueous Solution.		Ethyleneglycol.	
p_H.	Immed.	Forty-eight hours.	Immed.	Forty-eight hours.
9.24	Prec.	Solid gel.	Clear	Clear
8.2	Prec.	Prec.	Clear	Clear
8.0	Turb.	Prec.	Clear	Clear
7.9	Sl. turb.	Turb.	Clear	Clear
7.6	Clear	Clear	Clear	Clear
7.0	Clear	Clear	Clear	Clear
6.4	Clear	Clear	Clear	Clear
6.0	Clear	Clear	Sl. turb.	Clear
5.4	Clear	Sl. prec.	Sl. turb.	Clear
5.0	Sl. turb.	Sl. prec.	Turb.	Sl. turb.

justed to different levels by the addition of $N/10$ hydrochloric acid or $N/10$ sodium hydroxide. Observations were made immediately, and after forty-eight hours.

Table II shows that changes of the p_H produce a more marked effect in the aqueous solution than in the ethyleneglycol solution, the latter being only slightly affected in the lower range of our experiment. It may also be mentioned that with the ethyleneglycol solution considerably more acid or alkali (up to twice the amount) was required to produce a certain change of the p_H, which indicates that in the latter solution, the ionization was considerably reduced.

(*c*) *Effect of Cathions and Anions.*—9.7 cubic centimeters of both solutions, 0.5 cc. of phenol red solution were placed in test-tubes, and 0.3 cc. of the concentrated solution of the different salts were added to give the percentage stated in the following table. Observations were made immediately, after forty-eight and after sixty-two hours.

TABLE III.—EFFECT OF CATHIONS AND ANIONS ON 2.5 PER CENT SOLUTIONS OF DIBISMUTHYL MONOSODIUM CITRATE IN WATER AND IN ETHYLENE GLYCOL.

	Aqueous Solution.						Ethyleneglycol.					
	Immed.		Forty-eight hours.		Sixty-two hours.		Immed.		Forty-eight hours.		Sixty-two hours.	
Conc. of salts %.	p_H.	Prec.	p_H.	Prec.	p_H.	Prec.	p_H.	Prec.	p_H.	Prec.	p_H.	Prec.
0.92% NaCl	7.6	None	7.6	None	7.5	None	8.2	None	8.2	None	8.2	None
0.042% KCl	7.6	None	7.6	None	7.6	None	8.2	None	8.2	None	8.2	None
0.024% $CaCl + 2H_2O$	7.6	None	7.6	None	7.6	None	8.2	None	8.2	None	8.2	None
0.003% $NaHCO_3$	7.6	None	7.6	None	7.6	None	8.2	None	8.2	None	8.2	None
2.16% NaBr	7.6	None	7.6	None	7.5	None	8.2	None	8.2	None	8.2	None
2.32% NaJ	7.6	None	7.6	None	7.5	None	8.2	None	8.2	None	8.2	None
1.32% $NaNO_3$	7.6	None	7.6	None	7.5	None	8.2	None	8.2	None	8.2	None
2.14% Na Acet.	7.6	None	7.6	None	7.6	None	8.2	None	8.2	None	8.2	None
1.17% KCl	7.6	None	7.6	None	7.6	None	8.2	None	8.2	None	8.2	None
1.59% KNO_3	7.6	None	7.6	None	7.6	None	8.2	None	8.2	None	8.2	None
2.17% K_2CO_3	< 8.2	Prec.	< 8.2	Prec.	< 8.2	Prec.	< 8.2	Sl. prec.	< 8.2	Dis.	< 8.2	Prec.

Table III shows that both solutions behave exactly alike toward different cathions and anions. In a former study, in which a 10 per cent aqueous solution of dibismuthyl monosodium citrate was used, it was found that 0.024 per cent calcium chloride formed a white precipitate, which was partly redissolved; with more diluted solutions of the bismuth salt (2.5 per cent), this precipitation does not occur.

From these experiments it may be concluded that dibismuthyl monosodium citrate in ethyleneglycol solution is less dissociated, and, therefore, more resistant toward the influence of heat and hydrogen-ion concentration, but both solutions behave alike toward the cathions and anions that were tried.

TABLE IV.—PRECIPITANT ACTION OF 2.5 PER CENT SOLUTIONS OF DIBISMUTHYL MONOSODIUM CITRATE IN WATER AND IN ETHYLENE GLYCOL IN SERUM.

		In Water.			In Ethyleneglycol.		
Cc. serum.	Cc. citrate.	Immed.	Twenty-four hours.	Forty-eight hours.	Immed.	Twenty-four hours.	Forty-eight hours.
5	0.25	Sl. turb.	Prec.	Prec.	Clear	Prec.	Prec.
5	0.5	Sl. turb.	Prec.	Prec.	Clear	Prec.	Prec.
5	1.0	Clear	Prec.	++	Clear	Prec.	Sl. prec.
5	2.0	Clear	Prec.	+++	Clear	Sl. prec.	Sl. prec.
5	3.0	Clear	Prec.	+++	Clear	Clear	Clear
5	4.0	Clear	Prec.	+++	Clear	Clear	Clear

Next, a comparative study on the precipitant action of these solutions on serum, and a 10 per cent aqueous solution of egg albumin was made. In these

experiments various quantities of a 2.5 per cent solution of dibismuthyl monosodium citrate in water and in ethyleneglycol were added to 5 cc. of beef serum and 10 per cent egg albumin, respectively, and the observations were made immediately after twenty-four and forty-eight hours.

TABLE V.—PRECIPITANT ACTION OF 2.5 PER CENT SOLUTIONS OF DIBISMUTHYL MONOSODIUM CITRATE IN WATER AND IN ETHYLENEGLYCOL ON 10 PER CENT EGG ALBUMIN.

Cc. albumin.	Cc. citrate.	In Water. Immed.	Twenty-four hours.	Forty-eight hours.	In Ethyleneglycol. Immed.	Twenty-four hours.	Forty-eight hours.
5.5	0.25	Clear	Sl. turb.	Sl. turb.	Clear	Clear	Sl. turb.
5	0.5	Clear	Sl. turb.	Sl. turb.	Clear	Clear	Sl. turb.
5	1.0	Clear	Sl. turb.	Sl. turb.	Clear	Clear	Sl. turb.
5	2.0	Clear	Sl. turb.	Clear	Clear	Clear	Clear
5	3.0	Clear	Clear	Clear	Clear	Clear	Clear
5	4.0	Clear	Clear	Clear	Clear	Clear	Clear

As may be seen from Table IV, both solutions show nearly the same precipitant action, immediately after the addition to the serum, but after twenty-four and forty-eight hours, the precipitation is distinctly less marked in the ethyleneglycol solution. The same holds true for the egg-albumin solution, as illustrated in Table V. This difference may also be explained by a smaller degree of ionization of the bismuth compound in the ethyleneglycol solution.

Since ethyleneglycol is freely soluble in water, its concentrated solutions should act like hypertonic solutions, and this might influence the diffusibility of dibismuthyl monosodium citrate through membranes. For this reason a series of experiments on the diffusibility of 2.5 per cent solutions of the bismuth compound in water and ethyleneglycol were made. In these experiments, 10 cc. of the two solutions were placed in collodion bags, and dialysed against distilled water. The amount of bismuth left in the bags was determined after one, two, three and four days.

TABLE VI.—DIFFUSIBILITY OF DIBISMUTHYL MONOSODIUM CITRATE IN WATER AND IN ETHYLENE GLYCOL SOLUTION THROUGH COLLODION MEMBRANES.

Time, days.	In water.	In ethyleneglycol.
0	0.1998	0.1844
1	0.1962	0.1612
2	0.1919	0.1576
3	0.1902	0.1339
4	0.1980	0.0948

Table VI shows that with the ethyleneglycol, the diffusion is distinctly faster than with the aqueous solution. Similar results were obtained in using frog skin instead of collodion membranes. No attempt was made to determine the cause of this difference, since comparative studies on the rate of absorption from the site of the injection in animals showed that in the living organism the conditions are quite different.

SUMMARY.

Dibismuthyl monosodium citrate anhydride is insoluble in ethyleneglycol; the hydrate, however, is easily soluble, and the resulting solution may be diluted with water ad libidum.

A comparative study on the effect of heat, hydrogen-ion concentration, cathions and anions, on 2.5 per cent solutions of bismuth sodium citrate in water and in ethyleneglycol indicates that in the ethyleneglycol solution, the bismuth sodium citrate is less dissociated, and, therefore, more stable.

The precipitant action of these solutions on serum and egg-albumin solutions indicates the same fact.

Ethyleneglycol solutions have the properties of hypertonic solutions, and from ethyleneglycol solutions, the bismuth diffuses more rapidly than from aqueous solutions.

STUDIES ON ALKALI BISMUTH TARTRATES FROM THE CHEMICAL AND BIOLOGICAL STANDPOINT.*

BY A. E. JURIST AND W. G. CHRISTIANSEN.

Although many publications have appeared concerning the preparation of alkali bismuth tartrates and the clinical value of them in the treatment of syphilis, little information is available regarding the behavior of alkali bismuth tartrates in aqueous solutions containing various stabilizing substances, such as buffers, sugars of different types, salts intended to aid absorption, protective colloids, etc. In addition to the results of this series of stability studies, a rather extensive set of experiments will be presented relating to the toxicity, absorption and local action (irritation at site of injection or other local reactions) of alkali bismuth tartrates when aqueous solutions of the latter are injected intramuscularly; particular reference will be made to the type of solution used. Also, the results of some rough p_H determinations using an indicator will be shown to have a direct relation to the stability of these solutions.

It was found that a very good estimate of the stability of a solution could be made by heating sealed ampuls of the solution at 105° C. and making periodic observations thereon. For the most part any solution which survived the heat-test for one-half hour or more was sufficiently stable to remain unchanged for the length of time required to make the biological studies desired. Also it was found that the sterilized and unsterilized solutions were on a par as regards stability; solutions used for the biological tests were sterilized by passage through a Berkefeld filter prior to ampuling. All solutions were made up to contain approximately 0.05 Gm. of bismuth metal per cc. or about 7% of the alkali bismuth tartrate. The data given in the following table describes most of the solutions prepared and the stability tests run on them. Unless otherwise stated the compound used was potassium tribismuth tartrate. As will be shown the difference between sodium tribismuth tartrate and potassium tribismuth tartrate was negligible.

TABLE I.—BISMUTH TARTRATE SOLUTIONS AND THEIR STABILITY.

Number.	Material added to the solution.	Stability at 105° C.	Stability in storage at room temperature.
1	5% Sucrose	Opalescent in 120 minutes	Clear light brown color
2	5% Sucrose and 2% benzyl alcohol	Opalescent in 120 minutes	Unchanged six mos.
3	10% Sucrose	Opalescent in 120 minutes	Clear light brown color
4	10% Sucrose and benzyl alcohol 2%	Opalescent in 120 minutes	Unchanged six mos.

* Scientific Section. A. PH. A., Baltimore meeting 1930.

5	25% Sucrose	Opalescent in 250 minutes	Clear light brown color
6	25% Sucrose and 2% benzyl alcohol A	Opalescent in 250 minutes	Unchanged six mos.
7	25% Sucrose and 2% benzyl alcohol B	Opalescent after 30 minutes	Precip'd in 90 days
8	25% Sucrose and 2% benzyl alcohol and 2% sodium taurocholate		Precip'd in 90 days
9	25% Sucrose and 2% benzyl alcohol and 2% triethylamine oleate		Precip'd Bismuth Oleate in 10 minutes
10	12.5% Lactose and 2% benzyl alcohol	Precipitated in 30 minutes	Clear but yellow in 90 days
11	5% Acacia and 2% benzyl alcohol		Precip'd in 10 min.
12	20% Glycerin and 2% benzyl alcohol	Unchanged in 24 hours	Unchanged in 8 mos.
13	25% Sucrose and 0.4% tartaric acid	Decomposed in 30 minutes	Cloudy, jelled in 60 days
14	25% Sucrose and 15% sodium thiosulphate	Precipitate of Bi_2S_3 in 30 minutes	
15	25% Sucrose and 10% sodium citrate	Precipitated bismuth citrate in 30 minutes	
16	25% Sucrose and CO_2 bubbled in until opalescent	Precipitated bismuth hydroxide in 10 minutes	
17	25% Sucrose and 0.6% potassium acid tartrate	Cloudy after 105 min.	Clear and colorless after 60 days
18	25% Sucrose and 2% benzyl alcohol and 5% glycerin	Precipitated in 85 minutes	Clear and colorless after 60 days
19	25% Sucrose and 2% benzyl alcohol (sodium tribismuth tartrate)	Precipitated in 140 minutes	
20	10% Sodium citrate and 2% sodium taurocholate	Precipitated in 10 minutes	
21	10% Glycerin and 10% sodium citrate	Precipitated in 10 minutes	
22	10% Glycerin and 2% sodium taurocholate	Precipitated in 10 minutes	
23	Colloidal solution in 14% of hydrolyzed gelatin	Jells and precipitates in 45 minutes	Cloudy and jelled in 2 months
24	10% Potassium gluconate	Immediate precipitate at room temperature	
25	10% Dextrose	Decomposed in less than one hour	
26	10% Levulose	Decomposed in less than one hour	
27	10% Glucose	Decomposed in less than one hour	Clear but brown in 90 days
28	10% Sorbitol	Jelled in one hour	
29	25% Sucrose	Unaltered in 30 minutes	

NOTE: All solutions 1–6 made with one lot of the bismuth tartrate and 7–29 made with a second lot.

The results given above will be discussed in different groups depending on the character of the dissolving medium. It was found that instability showed itself in different ways. Thus, solutions which were excessively alkaline deposited bismuth hydroxide; wherever the possibility existed an insoluble bismuth salt precipitated, *e. g.*, in the cases where alkali salts of organic acids were used; all the

reducing sugars caused the liberation of metallic bismuth; some solutions formed stiff jells; and where sulphur was present bismuth sulfide precipitated.

The first group of substances to be considered will be the sugars. Of these dextrose, levulose and glucose are reducing sugars containing either the aldehyde or the ketone group. In every instance a copious precipitate of metallic bismuth was formed at 105° C. and only the glucose solution remained clear when stored at room temperature but it turned dark brown in color. Sorbitol, an alcohol sugar which contains no reducing groups, did not liberate bismuth metal but jelled quite rapidly. The polysaccharides, lactose and sucrose, gave solutions which remained clear on storage at room temperature, but the lactose solution discolored whereas the 25% sucrose solution did not. The more dilute sucrose solutions were less stable than the 25% solution, and benzyl alcohol had no effect on the stability of these solutions. There was no appreciable difference between the stability of sodium tribismuth tartrate and potassium tribismuth tartrate solutions in 25% sucrose. From an examination of the results with sugar solutions it is apparent that the most stable solutions were made with sucrose and that only the sucrose solutions showed any stability when heated.

Various attempts were made to either increase the speed of absorption of sucrose solutions or buffer them by the addition of various salts of organic acids. These included sodium taurocholate, sodium citrate, tartaric acid, potassium acid tartrate and triethanolamine oleate. Sodium taurocholate, sodium citrate and triethanolamine oleate all precipitate the insoluble bismuth salts of the organic acids very rapidly when heated. The solution buffered with tartaric acid jelled, but the solution prepared with potassium acid tartrate was more stable than the corresponding potassium tribismuth tartrate solution in 25% sucrose without potassium acid tartrate. A sucrose solution made with sodium thiosulfate was unstable; it precipitated bismuth sulphide quite readily. Of these solutions the most stable was the potassium acid tartrate solution in 25% sucrose, and it was more stable than any of the other sugar solutions.

A solution made with glycerin and benzyl alcohol, using no sucrose, was prepared and this was extremely stable, in fact the most stable solution prepared. Consequently an attempt was made to stabilize a 25% sucrose solution by adding 5% of glycerin but this did not improve the stability of the sucrose solution at all. Also attempts were made to prepare aqueous solutions using either glycerin and sodium taurocholate or sodium citrate, or sodium taurocholate and sodium citrate but no sucrose. These solutions all precipitated bismuth salts of the organic acids immediately showing that glycerin could not be used to stabilize them. Similarly a potassium gluconate solution with potassium tribismuth tartrate immediately precipitated bismuth gluconate. Of all these solutions prepared without sucrose only the 20% glycerin solution was stable.

The last type of solution to be discussed is the one in which colloidal bismuth tartrate is prepared or protective colloids are used. In one instance a 25% sucrose solution was just neutralized to phenolphthalein by bubbling in carbon dioxide but this was unsatisfactory because the solution, initially hazy, soon precipitated, serving once more to emphasize the sensitivity of alkali bismuth tartrates to carbon dioxide. Then a solution of the bismuth tartrate in 5% acacia was made up; immediate precipitation of the insoluble arabic acid bismuth salt occurred. The

most promising of the colloidal solutions was prepared by dissolving 7 Gm. of potassium tribismuth tartrate in 100 cc. of a 14% hydrolyzed gelatin solution and then neutralizing to phenolphthalein with carbon dioxide. This gave a fairly stable colloidal bismuth tartrate solution which was opalescent but did not precipitate. On storage or heating, however, it set to a firm jell thus eliminating it as a satisfactory type of solution. All the colloidal solutions were unsatisfactory.

From the stability standpoint, only the 25% sucrose solutions, the 25% sucrose solution buffered with potassium acid tartrate, and the 20% glycerin solution were sufficiently stable for satisfactory storage. These three solutions are of increasing stability in the order named. The fact that the solution containing the potassium acid tartrate was more stable than one without it brings up the question of p_H in relation to the stability of these solutions (1). No suitable electrode such as the quinhydrone electrode was available so recourse was had to indicators. Indigo carmine (2) faded badly but was nevertheless sufficiently stable to show any significant differences between the various solutions in the highly alkaline range of these substances. A series of results is given in the following table showing clearly the relation between p_H and stability.

TABLE II.—p_H DETERMINATIONS ON ALKALI METAL TRIBISMUTH TARTRATES.

Product.	Solution.	p_H.
Potassium tribismuth tartrate**	25% Sucrose	12.3
Potassium tribismuth tartrate***	25% Sucrose	11.8
Potassium tribismuth tartrate*	25% Sucrose	11.2
Potassium tribismuth tartrate**	25% Glycerin	11.0
Potassium tribismuth tartrate**	25% Sucrose and potassium acid tartrate	11.2
Potassium sodium bismuth tartrate	10% Glucose	12.3

* Lot A. ** Lot B. *** Lot C.

These results are very significant in explaining why the solution of batch A in 25% sucrose was more stable than that of B and why C in turn gave more stable solutions than B. Thus, the most stable solutions, namely, those of batch B in 20% glycerin and in 25% sucrose containing 0.6% of potassium acid tartrate, have a p_H of 11.0 and 11.2, respectively; the latter results were also obtained with lot A in aqueous sucrose without potassium acid tartrate. This then explains the superior stability of solutions of potassium tribismuth tartrate A over B since the latter without a buffer gives a p_H one unit higher than the most stable solution. Also compound C having a lower p_H than B is more stable. These results do not apply to potassium sodium bismuth tartrate since this compound, having two atoms of alkali metal to one of bismuth and one of tartaric acid, should give a higher p_H and still be stable at that p_H.

The results indicate that the only water solutions of alkali tribismuth tartrates which are satisfactory from the standpoint of stability are made up in 25% sucrose and buffered, if necessary, to a p_H of 11.0 to 11.2 with potassium or sodium acid tartrate depending on the alkali metal present in the bismuth compound. No difference from the stability standpoint can be detected between the monosodium tribismuth tartrate and the potassium tribismuth tartrate used in most of these experiments.

The next tables will give the results of animal studies on absorption, toxicity and local irritation of a number of the preparations discussed in the foregoing. Absorption and toxicity tests were run on albino rats, but the local effects at the site of injection were studied with dogs since they are more sensitive and are more likely to show any differences which might exist between different solutions. Also some comparison will be made between water solutions and oil suspensions as regards toxicity and absorption.

The following table summarizes the results of studies of the local effects produced by intramuscular injection of alkali bismuth tartrates in dogs. The results show the comparative value of different media for preparing these solutions. The dosage was 1 cc. of solution containing approximately 0.05 Gm. of bismuth per cc. The three factors considered are pain, swelling and lump formation, pain is graded as slight, definite (sensitive to contact), and decided (very sensitive to contact). Swelling means general swelling in the area surrounding the site of injection. Lump formation refers to the formation of lumps at the site of injection of varying size, persisting from one to fourteen days and being hard to the touch. In studying the latter type of local reactions the table indicates the maximum reaction observed in a majority of the animals injected with the material being tested.

TABLE III.—LOCAL REACTIONS PRODUCED IN DOGS BY INTRAMUSCULAR INJECTIONS OF ALKALI BISMUTH TARTRATES.

Preparation.	Swelling.	Pain.	Lump formation (size).
Potassium sodium bismuth tartrate	Slight	Moderate	Hen egg
Sodium tribismuth tartrate	Slight	Slight	Hen egg
27	Slight	Slight	Pea size
6	Moderate	Slight	Hen egg
7	Slight	Decided	Pea size
8	Slight	Slight	Pigeon egg
12	Very slight	Slight	Pigeon egg
29	Very slight	Decided	Hen egg
18	Very slight	Definite	Hen egg
19	Very slight	Definite	Hen egg
17	Very slight	Slight	Hen egg
23	Very slight	Slight	Hen egg

NOTE: The numbers in the above refer to those in Table I.

No effects such as are described in this table were noted when the diluent was injected without the alkali bismuth tartrate except that sodium taurocholate caused slight lump formation with no local pain or swelling. Glycerin caused necrosis in 25% of the experiments in which it was used alone.

The results show the formation of large lumps in every case but one. All injections were followed by some local swelling and varying degrees of pain, but lump formation was the most persistent and severe reaction. Since it has been found that the diluents without the alkali bismuth tartrates did not cause these severe local reactions it is apparent that the alkali bismuth tartrates alone are responsible. It is not surprising then that all the solutions appear to give similar reactions showing only minor variations. In view of the above results, the severe local reactions sometimes encountered in human beings injected with alkali bismuth tartrates are not surprising but, rather, to be expected. The results do not indicate that from

the biological standpoint any one medium is superior to any other for preparing aqueous solutions of the alkali bismuth tartrates.

The results of the toxicity and absorption studies are given in the following table. Owing to the nature of the compounds tested it is impossible to obtain an accurate absolute toxicity but it is possible to get an approximate result from growth curves which form the basis for the results given. It is unnecessary to indicate more than complete or incomplete absorption, because a single injection of an aqueous solution is usually almost completely absorbed within the first 72 hours after injection. In cases of incomplete absorption the results were variable although extended over a period of about sixty days or more. Inasmuch as other published results have demonstrated that oil suspensions are not completely absorbed whereas the aqueous solutions usually are, the work on oil suspensions was not extensive.

TABLE IV.—TOXICITY AND ABSORPTION OF ALKALI BISMUTH TARTRATES ON ALBINO RATS.

Description of material tested.	Absorption.	Toxicity (approx.), mg. per Kg. of body wt.
Sodium tribismuth tartrate in 10% glucose	Complete	600
Sodium tribismuth tartrate in 25% sucrose and 2% benzyl alcohol	Complete	600
Potassium tribismuth tartrate in 10% glucose	Complete	600
Potassium tribismuth tartrate A in 25% sucrose and 2% benzyl alcohol	Complete	600
Potassium tribismuth tartrate B in 25% sucrose and 2% benzyl alcohol	Complete	600
Potassium tribismuth tartrate B in 25% sucrose and 2% benzyl alcohol and 2% sodium taurocholate	Complete	600
Potassium tribismuth tartrate B in 25% sucrose	Complete	600
Potassium sodium bismuth tartrate in 10% glucose	Complete	50
Sodium tribismuth tartrate in oil suspension	Incomplete	600
Potassium tribismuth tartrate in oil suspension	Incomplete	600

The results show no variations in the toxicity and absorption of the sodium and potassium tribismuth tartrates whether the solution is in 10% glucose, 25% sucrose or oil suspension. The addition of 2% of sodium taurocholate to the 25% sucrose solution or the addition of benzyl alcohol seem to be without effect on these characteristics. Sodium taurocholate solution accelerated the absorption initially, but the rate was not sustained owing, perhaps, to tissue damage which was more extensive than usual and which was probably due to over-rapid absorption of the toxic bismuth compound. The potassium sodium bismuth tartrate was as well absorbed as the others, but it was much more toxic than the sodium or potassium tribismuth tartrates. The oil suspensions were not completely absorbed. There was no significant difference in toxicity between the potassium and sodium tribismuth tartrates. However, owing to the incomplete and much slower absorption of the oil suspensions, the toxicity of sodium and potassium tribismuth tartrates in this form may be slightly lower than in aqueous solution, but again the difference is slight.

The results of these studies show that stable solutions of the alkali bismuth tartrates can be prepared using glycerin or 25% sucrose properly adjusted for p_H when necessary. The biological tests favor the latter type of solution since the

glycerin alone can produce reactions which sucrose does not produce. The use of the alkali bismuth tartrates in aqueous solution is accompanied by marked local reactions including pain, local swelling and lump formation at the site of injection. These reactions are due in each case to the alkali bismuth tartrate and are in no way related to the nature of the aqueous media in which they are dissolved. Therefore, it would appear that in spite of their low toxicity and ready absorption aqueous solutions of the alkali bismuth tartrates are far from satisfactory therapeutic agents in syphilis; the severe local reactions which they produce on intramuscular injection in animals are almost certain to be paralleled in man. It does not appear to be possible to materially reduce these local reactions by modifying the aqueous media in which the compound is dissolved.

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RESEARCH DEPARTMENT OF THE CHEMICAL AND PHARMACEUTICAL LABORATORIES,
E. R. SQUIBB & SONS, BROOKLYN, N. Y.

A PHYSICO-CHEMICAL METHOD OF MEASURING THE ACTIVITY OF PEPSIN. PART I—A PRELIMINARY STUDY.*†

BY EDWIN R. THEIS.

The usual procedure in measuring the activity of pepsin, has been to allow the enzyme to act in acid medium upon the substrate (coagulated egg albumin) at a more or less constant temperature for several hours and then measuring the amount of digestion by one of several methods. While this method is being used universally, it lacks many of the real essentials of being completely quantitative in nature and the personal error is in many cases rather large.

The writer, in studying the nature of pepsin and the kinetics of enzyme action in detail, came upon a physico-chemical method that may be of more than passing interest. It has been shown[1] in former work that when any protein is placed in water, a net contraction in volume of the entire system results, in other words the protein hydrates. As hydration proceeds, the net contraction of the system continues until an equilibrium condition is attained. This contraction of the system is the result of an internal compression of the absorbed liquid within the protein. It has been further shown[2] that if an enzyme, such as pepsin, is added to the liquid medium, hydration proceeds as before, but a temporary equilibrium results at an earlier period, at which time hydration ceases and dehydration

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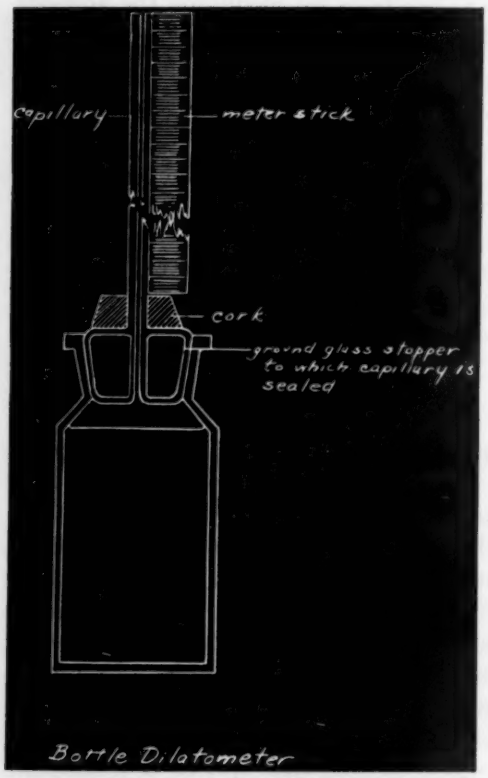
* From Lehigh University, Bethlehem, Pa., and the Scientific Laboratories of Frederick Stearns and Co., Detroit, Mich.

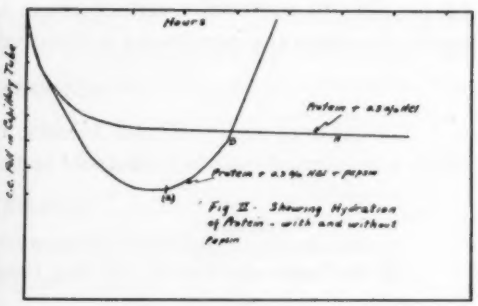
† Scientific Section, A. PH. A., Baltimore meeting, 1931.

[1] *Ind. Eng. Chem.*, 21 (1929), 377; 22 (1930), 64.

[2] *Ibid.*, 22 (1930), 64.

occurs (evidenced by a net expansion of the system). This condition can be more easily explained by the use of Fig. 1. This figure shows several curves. Curve A is that of a protein placed in 0.3 per cent hydrochloric acid solution and the net volume decrease quantitatively measured over a period of time. It is seen from this curve that after a short time an equilibrium condition is soon reached. Curve B shows the type of curve obtained when pepsin is added to the above system. It is seen that only a temporary equilibrium condition results and in a short time the curve shows an upward trend—indicating a dehydration of the system. This





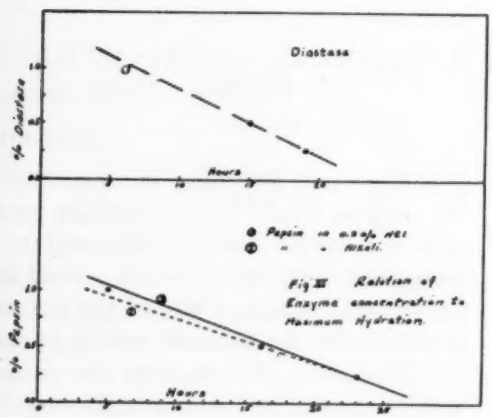


Fig. 1.

Fig III.

upward trend of the curve is caused by the peptic activity of the enzyme upon the protein—changing its potential hydration capacity. The early part of the curve represents the mean value of the hydrating and dehydrating forces. It can readily be seen from the curve that after a certain interval, the peptic digestion of the protein completely changes the hydration capacity and these changes are clearly indicated by the upward trend of the curve.

EXPERIMENTAL.

In developing this preliminary study, an improved dilatometer was used. This piece of apparatus is shown in Fig. 2. As protein material, cured calf skin

(cut into small cubes of 1 cm. edge) was used. Twenty grams of this material was placed in the dilatometer bottle, brought to a constant temperature of 37.5° C., 0.3 per cent hydrochloric acid solution added (where pepsin was used the enzyme was added to the acid solution), the glass stopper containing the capillary tube inserted into the bottle and the whole apparatus placed in a constant temperature bath, maintained at 37.5° C. Readings of the decrease in volume in the capillary tube were made until such a time as the system changed and an increase in the volume of the system occurred. The time for this change was noted for each pepsin concentration.

DISCUSSION.

Figure 3 shows in graphical form the results obtained by the method outlined. If the per cent of enzyme used is plotted against the time of maximum hydration (just at the point where dehydration begins as shown at "a" in Fig. 2) of the protein, we obtain the curves shown in Fig. 3. It is readily seen from the figures that a straight line function results, making it possible to determine just what percentage of pepsin (in this case 1:6000) was used.

These curves can be interpolated for any strength of pepsin. Suppose the sample is thought to be 1:12,000 pepsin, by making a 0.25 per cent solution of this pepsin and placing it together with the protein in a dilatometer, all that it is necessary to do is to determine the time of maximum hydration, by the method described previously. Suppose that we find that the time of maximum hydration is 17 hours—from Fig. 3, we see that this period of hydration corresponds to a 0.45 per cent solution (on the 1:6000 pepsin curve). By calculation

$$\frac{0.45}{0.25} \times 6000 = 10{,}800 \text{ pepsin},$$

and our sample instead of being a 1:12,000 material is really a 1:10,800 sample.

As a general rule, the amount of hydration is increased by the addition of pepsin. This will be shown in Part 2 of these studies, which will be given at a later date. Work is now underway to obtain similar data, as outlined in this preliminary paper, using standard gelatin rather than animal skin as the protein material. The use of gelatin or some related material will make for a much more simple and more far-reaching standard physico-chemical method.

CONCLUSION.

A physico-chemical method for determining the activity of peptic enzymes is given in a preliminary way. This method is based upon the ability of proteins to hydrate. The amount of hydration is measured by the amount of net decrease in volume of the entire system. It is shown that the ability to hydrate is affected by the addition of such enzymes as pepsin. The effect upon hydration is measured and the amount of peptic digestion is gaged from the plotted graphs. The method offers interesting possibilities for future work upon more standard protein material, such as gelatin and casein, and this work will be reported upon.

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J. Pharm. Soc. Japan, No. 587 (1931), 3

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Perf. & Ess. Oil Rec., 21 (1930), 473

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Oil of myrtle
Parfums de France, 8 (1931), 334; through *Chem. Abstr.*, 25 (1931), 1034

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J. Am. Chem. Soc., 53 (1931), 968

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J. pharm. chim., 13 (1931), 244
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J. pharm. chim., 13 (1931), 185

CLINICAL TESTS.

Guillaumin, Ch. O.
Measure of calcium in the blood
J. pharm. chim., 13 (1931), 65

COMMENTS PERTINENT TO THE COMING REVISIONS OF THE U. S. P. AND N. F.*

BY GEORGE E. ÉWE.

Since revision of the U. S. P. and N. F. will shortly be conducted, comments and criticisms which may be helpful in the revision processes are pertinent at this time.

It seems the duty of those having occasion to consult these reference books in their daily work, and who consequently are in a position to judge the practical nature of their contents, to comment upon and criticize certain features in a constructive sense.

Consequently, the following comments are offered with the hope that out of all the chaff sufficient grains may be salvaged to reward the efforts of the winnower.

Aloe, U. S. P.—If the U. S. P. test for "gum or inorganic impurities" is of significance it should be placed on a quantitative basis. Practically no market product will yield a "nearly clear" solution in this test.

Aloin, U. S. P.—It is often difficult to dissolve 1 Gm. in 120 cc. distilled water at 25° C. by shaking frequently during 2 hours and high results are sometimes obtained, as a consequence, for proportion of insoluble matter. A slightly elevated temperature makes this test convenient and reliable. The effect of elevated temperature upon the permissible limit of insoluble matter requires investigation, with the view of making results of this test more certain.

Chloramine, U. S. P.—Caution against contact of this substance with organic materials at elevated temperature might be included as it may cause a conflagration if dampened and then dried on paper in a tablet granulation drier.

Cod Liver Oil, U. S. P.—Vitamin A standard is too low. A method of determining vitamin D should be added.

Compound Resorcin Ointment, N. F.—Usually discolors in a few weeks to a few months and becomes unsightly. Means of preventing this deserve study.

Elixir Four Chlorides, N. F.—Precipitates a mixture of organic matter and mercurous

* Scientific Section, A. PH. A., Baltimore meeting, 1930.

salts after some months. No particular ingredient is alone responsible as practically each ingredient, with the exception of the hydrochloric acid, will precipitate the mercury salt in time when tried out separately. The alcohol is particularly active in this respect and also the flavoring oils. The only practical method found of largely overcoming this defect seems to be to make a radical change in this product, making it a syrup flavored with methyl salicylate, since sugar and methyl salicylate seem to cause practically no reduction of the mercury salt and a product so made develops only a barely perceptible precipitate in somewhat less than a year. However, this syrup entirely differs from the N. F. elixir in all physical characteristics.

Elixir Glycerophosphates Comp., N. F.—Develops a small but unsightly precipitate after a few months. This defect can be largely overcome by increasing the lactic acid and completely corrected if phosphoric acid is used instead. However, in the latter case the product is practically colorless, whereas the N. F. product is yellowish.

Fluidextract Buchu, U. S. P.—To obtain uniformity in color of succeeding batches and assure brightness of green color the use of Type Process C (fractional or divided percolation) is preferable to Type Process A now prescribed.

Fluidextract Ergot, U. S. P.—A means of stabilizing the activity is needed.

Fluidextract Ipecac, U. S. P.—Often causes cloudiness in Syrup Ipecac made from it. This defect can usually be overcome by using a mixture of 4 or 5 volumes of alcohol to one volume of water along with hydrochloric acid as menstruum throughout; evaporating the extra percolate at not above 65° C. and stopping the evaporation before the concentrated percolate gets excessively cloudy; and insuring clarity of Fluidextract before using it for making Syrup Ipecac by careful filtration aided by a trifle of kieselguhr.

Fluidextract Licorice, U. S. P.—The taste of a product containing ammonia water is preferred. However, the ammonia is preferably not used in percolating but added to the completed product just before filtration.

Fowler's Solution, U. S. P.—Methods of retarding oxidation require study. An assay for total arsenic should be added to establish original strength possessed by the solution before oxidation set in.

Hexamethylenamine U. S. P.—Methyl red as indicator gives sharper end-point in titration.

Hydrastis, U. S. P., and Tincture and Extract Hydrastis, N. F.—The weighed alkaloidal residue obtained in the assay should be corrected for acid-insoluble matters as in the case of colchicum seed.

Hypophosphorous Acid, U. S. P.—Invariably Calcium is present in the market supplies; the average of several lots was 1.42% calculated as calcium hypophosphite. A limit might be established, or at least the presence of calcium declared, as a guard against incompatibility in pharmaceutical work.

Hypophosphites of the N. F.—The alkali specified to effect neutralization after oxidation with nitric acid during the assay process is "Sodium Hydroxide Test Solution (free from Chloride)" in the case of ammonium, calcium, and manganese hypophosphites; "Special Sodium Hydroxide Test Solution (free from Chloride)" in the case of Potassium Hypophosphite and "Special Potassium Hydroxide Test Solution (see Reagents, U. S. P.)" in the case of Sodium Hypophosphite. Uniformity is needed in this respect.

In the assay of Calcium Hypophosphite instructions are given to reject the first 20 cc. of filtrate before collecting the 50 cc. for titration; whereas, in the assay of Potassium and Sodium Hypophosphites the first 25 cc. of filtrate is to be rejected and in the assays for the ammonium and manganese salts no rejection of first filtrate is directed. Consistent instructions are needed in this respect.

In the assay of the Hypophosphites of Ammonium, Calcium, Potassium and Sodium the following less tedious and less laborious process might be permitted as an alternate method: Dissolve 3.5 Gm. of the hypophosphite, previously dried over sulphuric acid for 24 hours, in 1000 cc. water; place 10 cc. aliquot in a glass-stoppered flask, add 35 cc. tenth-normal Potass. Permanganate, 20 cc. water and 1.1 cc. Concentrated Sulphuric Acid; shake, stopper and let stand for 24 hours in the dark; add 5 cc. Potassium Iodide T. S. and titrate with tenth-normal Thiosulphate. Make correction for blank.

One cc. tenth-normal Permanganate is equal to 0.002075 Gm. Anhydrous Ammonium Hypophosphite; or 0.002125 Gm. Anhydrous Calcium Hypophosphite, or 0.002601 Gm. Anhy-

drous Potassium Hypophosphite, or 0.002648 Gm. Sodium Hypophosphite containing 1 molecule of water.

Lithium Benzoate and Lithium Salicylate, N. F.—A more distinctive assay process is advisable, such as separation of, followed by titration of, the acid radical.

Mercuric Iodide, U. S. P.—A more available assay method is advisable. The iodate titration method is eminently satisfactory; or precipitation as sulphide after solution of the iodide in either potassium iodide or sodium thiosulphate solutions can be used.

Oil Birch Tar, Rectified, N. F.—Warning might be included against storage in tinned iron containers (the common method at present), which soon blackens the oil with the result that the color of products in which the oil is used is spoiled.

Ointment Boric Acid.—A product made with white petrolatum is more elegant and is preferred by the "trade" and should be adopted if not unwarranted by therapeutic considerations.

Ointment Sulphur, U. S. P.—Pharmaceutical elegance dictates the use of petrolatum or a mixture of petrolatum and anhydrous lanolin as base if therapeutic considerations do not forbid.

Proximate Assays, U. S. P.—Under "evaporation of solvents" (page 453): In addition to the alkaloids of Hyoscyamus, the alkaloids of Ipecac could be stated as being sensitive to heat. Since the object of this passage appears to be a warning against the overheating of certain alkaloidal residues it might be well to direct that the solution of alkaloids in volatile solvent be not entirely evaporated to dryness with heat and that the last several cc. be evaporated with a current of dry air at room temperature.

It might be well to state that no visible water should be present during the evaporation of solvents containing hydrolyzable free alkaloids, such as those of the mydriatic drugs.

It is not necessary to treat alkaloidal residues obtained from Chloroform with ether or alcohol when the residue is to be titrated but this procedure is advisable when the residue is to be weighed.

It would also be well to direct that alkaloids obtained in gravimetric determinations be corrected for acid-insoluble matters somewhat like the directions under Colchicum Corm and Seed.

Sodium Nitrite, U. S. P.—If present assay process is retained some such modification as follows is desirable: Add the Oxalic Acid Solution one cc. at a time, shaking well after each addition until the liquid becomes absolutely clear and colorless (there will be an excess of oxalic acid at this stage); then titrate back slowly with Permanganate Solution.

Soft Soap, U. S. P.—When made without added glycerin was clearer than with glycerin, even after one and one-quarter years. If glycerin can be deleted cost of production can be reduced. This suggestion is based upon a single observation and requires confirmation by other observers.

Solution Acid Phosphates, N. F.—Trouble has been experienced with fungous growths. These have been prevented by the addition of about 1% of concentrated hydrochloric acid along with 0.4% of formic acid.

Spirit of Nitroglycerin, U. S. P.—A more distinctive assay process is preferable, such as the Devarda Alloy method.

Strontium Salicylate, U. S. P.—Is usually quite acid, due to excess of salicylic acid. One lot had acidity to phenolphthalein corresponding to 0.73% free salicylic acid. The U. S. P. prescribes no reaction test at present. A limit of acidity should be stated. Also a more distinctive assay process is desirable, such as separation of the salicylic acid with subsequent titration.

Sulphur, Sublimed, U. S. P.—Fifty cc. of a 1 to 10 solution of Potassium Hydroxide is prescribed for dissolving the 1 Gm. sample at boiling temperature. This concentration is too weak and solution is unduly delayed which results in loading the solution with silica when the process is conducted in glass. A 1 to 2 solution of potassium hydroxide effects solution in one-tenth the length of time with very little effect upon glass vessels. Nevertheless, with this modification the blank determination directed by the U. S. P. is still necessary.

Syrup Calcium Lactophosphates, N. F.—Occasionally ferments or develops growths. Increasing sugar content does not seem to prevent this. The use of 1 part of 40% formaldehyde solution in 10,000 parts of the syrup has proved effective in overcoming these defects.

Syrup Hydriodic Acid, U. S. P.—Caramelizes due to excessive acidity. Attempts to lower acidity by reducing proportion of hypophosphorous acid have resulted in appearance of free iodine in the syrup. The only practical method found so far is to decrease acidity through dilution with

water allowed by a reduction of sugar content. Even so low a sugar content as 25% preserves well and a product with 35% sugar remains essentially colorless for a year. Possibly a buffer might be found which would reduce the acidity without decreasing the effectiveness of the hypophosphorous acid. Replacing the sugar with glycerin is satisfactory if the glycerin is free from butyric acid, otherwise a repugnant odor develops.

Syrup Iodo-tannin, N. F.—Assay process for iodine advisable as method of manufacture makes loss liable.

Syrup Wild Cherry, U. S. P.—Generally does not keep well unless sugar content is increased to insure gravity of not less than 1.34 at 25° C.

Tincture Aconite, U. S. P., and **Fluidextract Aconite, N. F.**—It is to be hoped that some established means of stabilizing these products will be introduced into the next revisions.

Zinc Acetate, U. S. P., and **Zinc Phenolsulphonate, N. F.**—Assay process is very tedious, should be replaced by more practical one, such as the ferrocyanide titration method.

Zinc Chloride, Oxide, Stearate and **Sulphate** and **Liquor Zinc Chloride, U. S. P.**—A more distinctive assay process is advisable, such as the ferrocyanide titration method.

RESEARCH LABORATORIES,
TAILBY NASON COMPANY,
BOSTON, MASS.

GRAVIMETRIC DETERMINATION OF LEAD IN SOLUTION OF LEAD SUBACETATE.*

BY JOSEPH L. MAYER.

The United States Pharmacopœia, on page 221, directs that Solution of Lead Subacetate be assayed for its lead content by the following procedure:

"Place about 1 cc. of Solution of Subacetate, accurately weighed, in a 200-cc. volumetric flask, dilute with 50 cc. of recently boiled distilled water and add 50 cc. of tenth-normal oxalic acid. Agitate the mixture thoroughly for five minutes, fill to the mark with distilled water, shake and filter, rejecting the first 20 cc. of the filtrate. Add 5 cc. of sulphuric acid to 100 cc. of the filtrate, warm to about 70° C. and titrate the residual oxalic acid with tenth-normal potassium permanganate. Each cc. of tenth-normal oxalic acid corresponds to 0.01036 Gm. of Pb."

Due to the fact that the volumetric solutions employed in the assay must be frequently restandardized the method is time-consuming and I have therefore developed the following gravimetric one:

Into a tared 50-cc. flask accurately weigh about 5 Gm. of the sample, then add 5 drops of C.P. HNO_3 and distilled water sufficient to make 50 cc. Add 10 cc. of this diluted solution to a 400-cc. beaker containing about 300 cc. of distilled water and heat nearly to boiling, after which add NH_4OH to incipient precipitation, then dilute HNO_3 (1:10) to redissolve the precipitate, avoiding more than a slight excess; to this nearly boiling solution, add 50 cc. of a 10 per cent potassium-chromate solution and stir thoroughly during the addition. The chromate solution should be nearly boiling and added to the lead solution by means of a pipette delivering 50 cc. in about 40 seconds. If the lead chromate is precipitated hot and stirred vigorously during the precipitation it will settle clear in 15 minutes or less, when it is ready to be filtered. Filter while hot, collecting the precipitate in a weighed Gooch crucible, and wash with boiling distilled water, until the wash water does not show the least

* Read before the Kings County Pharmaceutical Society meeting, March 10th.

tinge of yellow. Dry the precipitate in an air oven at from 140° to 150° C., to constant weight. From the weight of lead chromate obtained calculate the per cent of lead by multiplying weight of lead chromate by the factor 0.6410.

SUMMARY.

The volumetric solutions employed in assaying Solution of Lead Subacetate for its lead content must be frequently restandardized; a gravimetric method employing potassium chromate as the precipitant is submitted with directions for making the analysis.

The method is accurate, rapid, easily carried out and has everything to commend it.

CHEMICAL LABORATORY, BROOKLYN COLLEGE OF PHARMACY,
LONG ISLAND UNIVERSITY, BROOKLYN, N. Y.

CHARLES RICE.*

BY VIRGIL COBLENTZ.

The U. S. Pharmacopœial Revision of 1880 was memorable in that it served as a transition from the old to the new, embodying innovations in admissions and the introduction of a more advanced scientific treatment and arrangement of text. In fact, our present Pharmacopœia represents the development of policies instituted by Charles Rice. His comprehensive grasp of general principles with an unusual mastery of minute details, eminently fitted him as pioneer in this line.

CHARLES RICE.

No Pharmacopœia has as yet appeared that compares with the U. S. P. in systematic arrangement and scientific treatment of its text, due chiefly to the foresight, unusual scholarly attainments and executive abilities of Charles Rice.

In order to properly estimate the abilities of this scholar, let us not overlook the following facts. During his time, all correspondence relative to revision work was carried out personally in long hand, all communications and reports were sent out in hektograph copies. I recall the time when one set of manuscripts, which he was running off, all stuck so firmly to the gelatin pads, that they could only be removed in shreds. Patiently he re-wrote the entire set and then made up a new gelatin composition, one set of pads for summer use and another for cold weather.

He conducted many experiments in order to verify reports coming in. In addition to this work, the onerous and exacting duties of his position as chief chemist and apothecary to Bellevue Hospital and allied institutions connected with the De-

* Some reminiscences relative to Pharmacopœial Revision and his private life.—Section Historical Pharmacy, A. PH. A., Baltimore meeting, 1930.

partment of Charities of the City of New York, demanded time, care and attention. He was up at 5:00 A.M. attending to the examination of all the milk deliveries, then practically all supplies used in the various charity hospitals, as well as sterilization of cat gut ligatures, followed by manufacture of most galenicals used in any quantity.

Dr. Rice rarely erred in the selection of his leaders in Pharmacopœial Revision work. The less active, or those of limited usefulness, received due attention, and as he once whispered to me with a smile, "I shall place these men where they can do the least harm."

Nothing pained him more than petty disputes and jealousies which were sure to occur; however, with his keen insight into human nature and considerate kindness for the feelings of others, such matters were adjusted satisfactorily with consummate tact.

Dr. Rice was never quite satisfied with his work on the Revision text—for, as he said, "we must proceed with our new ideas slowly and cautiously in deference to others, and if we find favor, then let us go ahead and expand. Further, after all of us are through, some school-boy will come along and point out errors."

Owing to his extreme modesty and aversion to speaking of himself and his accomplishments, it was only through very frequent contact during the last ten years of his life, that I obtained an insight into this noble character.

Charles Rice, born in Munich in 1841, showed unusual abilities in languages and the sciences at early age. In some way or other, he attracted the attention of the then archbishop of Munich, who was instrumental in sending him to the Jesuit College in Paris.

Here he acquired his thorough schooling in oriental and classic languages and mathematics. He was able to read at least 20 languages, including Sanscrit in which he was an authority, as well as Coptic, Cunieform, Persian, Turkish, Arabic, Chinese, Japanese and Hebrew; was thoroughly conversant with Dutch, Italian, French, German and took up Russian in later years. His English was simply perfect, in fact it was a genuine pleasure to hear him speak, because of his clarity of expression and perfect diction. Dr. Rice was an adept in mathematics and chemistry, and through his past experiences, perfectly at home in practical pharmacy and pharmacognosy.

Dr. Rice's favorite flower was the lilac, Mozart his favorite composer and favorite cigar—the "Henry Clay." Recreation with him was a change in *kind* of work. At night he retired to his library and found supreme pleasure in his Sanscrit and Latin books. On hot summer nights he took pleasure in taking a ride on the old green "Boulevard" horsecars, riding out to 125th St. and back to his hot quarters at Bellevue.

For anyone in search of assistance, Dr. Rice always had time and patience; not even a student was turned away. Saturday afternoons were devoted usually to the library of the N. Y. College of Pharmacy, in which he took much pride. Its selection in books of reference was the best of any educational institution at that time in New York. He found time to devote in assisting the editing of *The American Druggist*, *The Newer Remedies*, as well as proof-reading for the Index Catalogue of the Congressional Library.

Dr. Rice's intense devotion to his many and exacting duties, coupled with close confinement, undermined his apparently robust constitution. Although he had

been suffering, without complaint, from what was then considered as intercostal neuralgia, he continued with his work until late one night in April 1901, I was called to the city and found him suffering intense pain. Fearing that his end was near, he dictated his wishes. He was specially concerned over the status of the work of Revision (1900), that it should suffer no interruption and change in policies. After a few days, he rallied and resumed his usual routine. Realizing that this would not continue, I wired Professor Remington to come on at once under guise of a friendly call.

It was not a day too soon, for Dr. Rice was again suffering intensely, but still able to detail the situation so that Professor Remington could take up the work uninterrupted. Taking all the books and manuscripts with him, the Pharmacopœial headquarters were then finally transferred to Philadelphia. Dr. Rice passed away a few days later. No more able man could have been found as successor in continuing the policies initiated by Charles Rice.

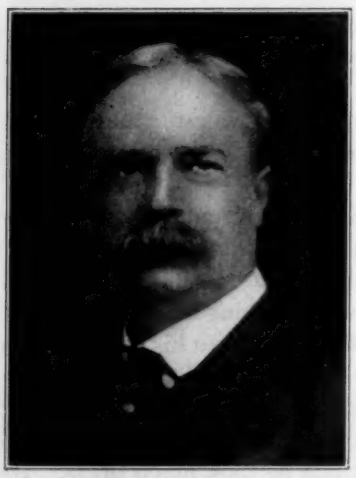
The memory of Charles Rice will always be cherished because of his scholarly attainments, activity in Pharmacopœial work, great kindness and unusual tact.

A memorial volume entitled "In Memoriam—Charles Rice" was printed by the J. B. Lippincott Co. and issued for private circulation in 1904.

JOSEPH PRICE REMINGTON—1847–1918.*

BY IVOR GRIFFITH.

Born in 1847 of early Philadelphia Quaker stock—his father Isaac Remington a well-known physician, and his mother a descendant of Townsend Speakman, a famous Quaker apothecary of the same city—Joseph P. Remington came naturally upon an inheritance rich in scientific attributes. That he capitalized to the utmost his ten talents is written large upon the worthy record which he has left behind him.



JOSEPH P. REMINGTON.

The high lights of his busy and useful life may be summarized in the following staccatoed notes.

1862. His father died when the son was only fifteen years of age.

1863. Entered pharmacy as clerk with Charles Ellis, Son & Co., Charles Ellis then the president of the Philadelphia College of Pharmacy.

1866. Graduated from the College. Thesis: "Our Alma Mater, Its Rise and Progress." (Little dreaming of the part he was destined to play in its later progress.)

1867. Entered the employ of Dr. Squibb.

1868. Joined AMERICAN PHARMACEUTICAL ASSOCIATION.

* Section Historical Pharmacy, A. PH. A., Baltimore meeting, 1930.

1870. Returned to Philadelphia with Powers & Weightman.

1871. Became assistant to Professor Parrish. Assumed ownership of a retail store and successfully operated it for 13 years.

1874. Wed to Elizabeth Collins, a Friend.

1877. Director of Laboratories at the College. Appointed upon an auxiliary committee of revision by the College—thus initiating his long Pharmacopœial career.

1879. Associate editor "United States Dispensatory"—continuing so to the end.

1880. Member of Pharmacopœial convention.

1880. Member of Revision Committee, and served as first vice-chairman.

1890. Repeated his Pharmacopœial contacts and contracts.

1893. Elected dean of his *Alma Mater.*

1893. President of the AMERICAN PHARMACEUTICAL ASSOCIATION—Chicago World's Fair meeting. Also presided that year over the International Pharmaceutical Conference at Chicago.

"As a member of the AMERICAN PHARMACEUTICAL ASSOCIATION he was most active. Joining in 1867, he served the ASSOCIATION in many capacities, being a regular attendant at the annual meetings, taking a leading part in the discussions and presenting papers on many important subjects, as the volumes of the PROCEEDINGS and JOURNAL since 1868 bear ample testimony. His good judgment and safe advice were constantly in demand. He was chairman of many important committees. He proposed the plan which was adopted for the establishment of the council in 1880 and was its chairman for seven years. In 1887, he elaborated a plan for the reorganization of the ASSOCIATION, dividing the scientific work into sections, and secured its adoption." (From the *A. J. P. Memorial Number*, Feb. 1918.)

1896. Delegate to International Pharmaceutical Congress, Brussels.

1900. Repeated his Pharmacopœial contacts and contracts.

1901. Upon the death of Professor Rice, made chairman of the Revision Committee.

1910. Elected chairman of the Revision Committee, holding the position until his death.

The Ninth Revision, issued in 1916, may be truly called his monument—the whole work being stamped with his personality.

1912. Presided over Pharmaceutical Section of the Eighth International Congress of Applied Chemistry at New York City.

1913. Official representative of the United States at the Hague International Pharmaceutical Congress.

January 1, 1918. Entered the eternal peace.

Professor LaWall, who had been very close to Dean Remington through the greater part of his active life, and who followed him as Dean of his beloved College and as chairman of the Revision Committee, penned this touching introduction to a memorial article published shortly after his death.

"He who influences the thought of his time influences the thought of all the time that follows. And he has made his impress upon eternity.

"Professor Joseph Price Remington is dead. On January 1, 1918, Atropos severed the thread of a life which has meant much to pharmacy. Clotho's distaff

bore the unsullied skein which Lachesis had measured for more than seventy years.

"It is difficult, indeed, to correctly estimate the value of a man's services to the world before time has developed the true perspective, but there will be none to challenge the statement that for a period of at least twenty-five years, Professor Joseph P. Remington was the foremost figure in American Pharmacy. Genial and eloquent, a keen student of human nature, a lover of the beautiful in art, music and literature, possessed of a fund of scientific knowledge of unusually broad scope and with it all a consciousness of power that made him an acknowledged leader among men—these are some of the qualities that were combined in him to make a great teacher, a capable executive and a Christian gentleman, clean-minded and clean-hearted."

"THE OERSTED CONSIDERED AS A NEW INTERNATIONAL MAGNETIC UNIT."

In an article of the April *Scientific Monthly*, Arthur E. Kennelly refers to work of the International Electrotechnical Commission at the convention in Scandinavia last summer, and some of the activities of Hans Christian Oersted are brought into the interesting, but brief, account. Mr. Kennelly relates that in the spring of 1820 Professor Oersted (professor of physics in the University of Copenhagen, Denmark) made laboratory experiments in search of some connection between magnetism and electricity. Up to that date, these sciences were considered as unconnected and independent; "ever since 1820 electricity and magnetism have been regarded as indissolubly connected. The union led shortly afterwards, through the work of other scientists, to further discoveries in electromagnetism which have profoundly affected the conduct of civilized life.

"On the occasion of its visit to Copenhagen, June 27, 1930, the visiting I. E. C. officers and delegates formally placed a suitably inscribed commemoration wreath in front of this statue."

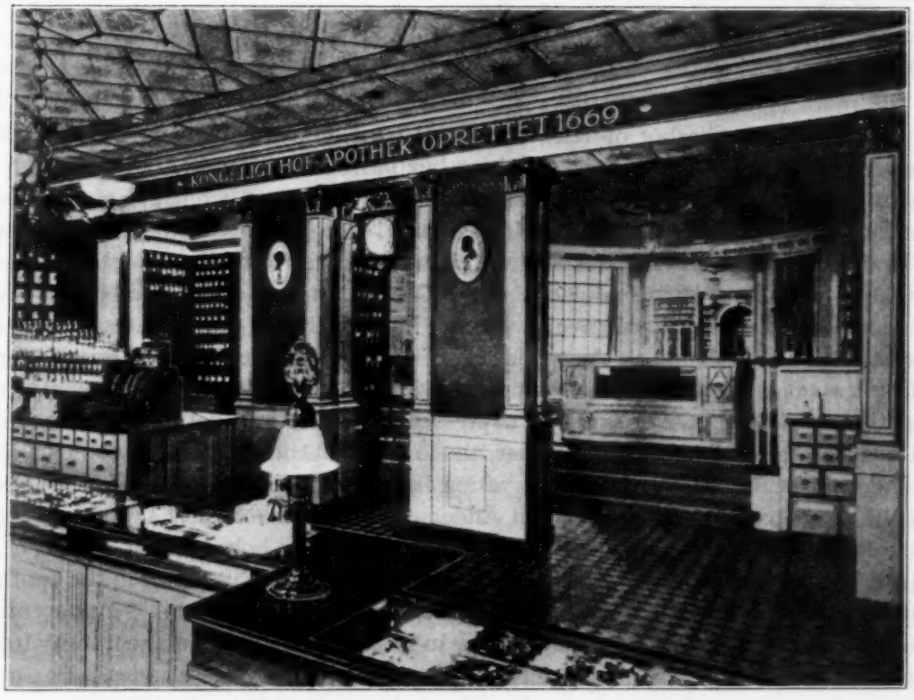
In the foregoing connection the article which follows is of interest. We are indebted to Mr. William Mair, F.C.S., M.P.S., Edinburgh, Scotland, for the accompanying view. Mr. Mair is known as author of "Indigenous Drugs of India" and has contributed many articles to the *Pharmaceutical Journal* of Great Britain. He has traveled throughout Europe and the "Far East" and has first-hand acquaintance with pharmacies of the world. We now have from him other illustrations than that used here and have been promised more, and wish to make acknowledgment of the friendly relations which we hope will bring Mr. Mair into more frequent notice in the JOURNAL.

Following the foregoing we are taking the liberty of re-printing an article by Dr. Edward Kremers, because it contains a sketch of Hans Christian Oersted. The article appears in the JOURNAL for July 1918, pages 620–625; it is illustrated, showing Oersted's Apothecary Shop, the statue in Oersted Park, Copenhagen, of Hans Christian Oersted and pictures of the latter and of his brother, Anders Sandoe Oersted. The reader will find the literary study quoted in the JOURNAL most interesting.

DENMARK PHARMACY.*

BY WILLIAM MAIR F.C.S.

A continuous history of two hundred and sixty years is the remarkable record of the Royal Court Pharmacy, still the first and best in Copenhagen. In May 1668, Johan Gottfried Becker was appointed Royal Court or Travel Pharmacist and he received the then annual salary of 200 rix-dollars. The following year he was licensed to open a pharmacy in the City, the "Elephantapotheket," the name it bears to this day. It remained where it was established from 1669 to 1850 when it was removed to its present location in the Kingsway. This was in the proprietor-



Interior Royal Court Pharmacy—Copenhagen.

ship of one Lauritz Oernstrup, but for 175 years before that it had remained in unbroken succession through five generations in the Becker family (1669–1845). During the long period of 231 years "Det Kongelige Hofapothek" has had the purveyance of medicine to the Royal Danish Court, which honor it continues to enjoy. These facts are taken and translated from a sumptuous folio volume published on the occasion of the 250th anniversary in 1919. As has been recorded elsewhere in these articles the documentation of the Danish pharmaceutists has been exceedingly well done. The then proprietor—Mr. Hans Christian Helweg-Mikkelson (1914–1930)—bought the business and property for 525,000 kroner. When the present proprietor—Apotheker Holger Baadslünd—took over the pharmacy in April 1930, he paid about double that sum. Mr. Baadslünd, born in

* *Pharmaceutical Journal and Pharmacist.*

Copenhagen, 1889, was appointed Court pharmacist on January 29, 1930, and his "privelegium" granted March 28th of the present year. Round three sides of the shop above the wall fittings are inscribed the names of all the proprietors and the dates of their occupancy from 1669 to 1930. Portrait medallions of the present King and Queen of Denmark adorn the walls. A lamp standing on the counter is surmounted by a crown and the initials H. A. (Hof Apotheket) finely wrought in bronze. The shallow and narrow counter cases carry tooth brushes and a few dentifrices and some English toilet soaps: there is no perfumery and no other display. A large business is done in supplying and renewing ships' medicine chests. There is a well-equipped pharmaceutical laboratory, and all through the quiet atmosphere of a large and highly responsible practice.

THE TWO SONS OF A DANISH APOTHECARY.*

BY EDWARD KREMERS.

Opposite the harbor of Kiel, the naval base of Germany, and between two larger Danish islands, there lies the long but narrow Langland. It is but four to eight Km. wide and 50 Km. long, hence its name; its area is but 275 square Km. According to recent statistics, it has a population of only 19,541 inhabitants. The only city on the island is Rudkjoebing, which at the same time boasted of 3447 inhabitants, and a harbor which about 150 vessels regarded as their home port. Yet this insignificant place gave to Denmark one of her greatest statesmen of the nineteenth century, and to the world one of her famous scientists. What is more, these two men were brothers, who first saw the light of day in the home of an apothecary. The love of truth as expressed in nature and nature's laws was instilled into their minds by their father, the love for all that is true and noble having previously been implanted in their young hearts by their mother. Such at least is the story told by Hans Christian Andersen in his tale of the "Two Brothers."

Hans Christian, the older of the two brothers, was born August 14, 1777, in Rudkjoebing. At the age of eleven he was set to work by his father in the apothecary shop, where "he developed a taste for the natural sciences." Apparently, to make up for the instructional deficiency in so small a place, he was sent away from home when eighteen years of age to receive instruction in the classics. For proficiency in these studies he received academic honors in 1796. In 1798 he received the medical prize of the University of Copenhagen and in 1799 he was awarded the doctor's degree in philosophy. Thus, while his father set him to work in his apothecary shop at an early age, this apprenticeship was not allowed to interfere with a liberal education in the classics and an equally broad introduction into the study of the natural sciences. One has but to look over the list of his publications to see that he never allowed his speciality to dwarf him intellectually.

In 1800 he acted as manager of the Manthe apothecary shop in Copenhagen, and at the same time delivered his first lectures in chemistry before the Academy of Surgery. After this he made his first trip to the continent, where he remained several years visiting the greater part of Germany, also France and Holland. He returned to Denmark in 1804. Somewhat later he was appointed to the professorship in physics at the University of Copenhagen. In 1824 he founded the Danish

* Jour. A. Ph. A., 7 (1918), 620–625.

Society for the Advancement of Science. In 1829 he was made Director of the Polytechnic School in Copenhagen. In 1840 and 1850 he received government recognition by being appointed conference councilor and privy conference councilor, respectively. He died March 9, 1851.

His world fame, Oersted owes to his discovery, in 1820, of the deviation of the magnetic needle thereby the electric current, thereby establishing the laws of electromagnetism. However, not a few of his earlier writings are of a chemical nature, and one of them in particular, *viz.*, his *Om et nyt Aesk i Peberen*, the discovery of piperine in pepper, only a few years after the German Apothecary Sertürner had discovered the alkaline properties of morphine, reflects his earlier pharmaceutical training.

The younger brother, Anders Sandoe, was born December 21, 1779, became a jurist and later statesman. In the latter capacity he advanced from one position to another until, in 1853, he was appointed prime minister by the King of Denmark. He died May 1, 1860.

However, to return to the apothecary shop, which is the scene of Andersen's story. According to the fifth edition of "Den Farmacevtiske Stat i Danmark," 1915, published by the Danish Pharmaceutical Society in 1917, the "Rudkjoebing Apotek" was established November 2, 1705, by Christopher Gottfried Becker. In 1741 it passed into the hands of Anders Joergensen and in 1773 into those of H. Vennenghausen. On June 5, 1776, hence only a month before the Declaration of Independence of the American colonies from England, it was purchased by Soeren Christian Oersted for 600 Rbdl. Inasmuch as neither of his sons followed in the footsteps of their father, the apothecary shop did not remain in the family, but passed into the hands of one Anthon Jacobaeus, March 10, 1806. After that it changed hands several times and since 1889 its proprietor has been Christian August Pilegaard Bauer.

But now, as to Hans Christian Andersen's story of the two brothers. It will be seen that the Christian names of the Danish story teller are those of the elder of the two brothers, the world-famous scientist who emanated from the modest apothecary shop in Rudkjoebing. The German translation is one of the seventeen selected by O. B. Super in his "Andersen's Maerchen" of the Heath Modern Language Series. However, the exceedingly meagre comments in the "Notes" contain nothing whatever pertaining to pharmacy. The English translation here reproduced is taken from the 1870 edition of "Stories and Tales" by Hans Christian Andersen, of Houghton, Mifflin Company, who kindly gave permission to use their text for this purpose.

"On one of the Danish Islands, where ancient judgment seats loom up mid the cornfields, and mighty trees lift their heads in the beech forests, lies a little town, with red roofs over the owl houses. In one of these, curious matters were being prepared over the coals and embers of the hearth: there was testing in crucibles; there was triturating and distilling; there was pounding of drugs in mortars; an old man stood over the whole.

" 'One must rightly combine the right matters,' said he 'yea, the right, the fitness, the truth in each created thing, we are to recognize and hold.'

"In the chamber, by the good good-woman of the house, sat two sons of hers—yet young, but with grown thoughts. Of right and reason had the mother ever counseled them, and to hold fast to truth, which is the face of God made visible on earth.

"The elder of the boys seemed arch and pert; his delight was, to read of nature's laws, of suns and stars—no tale could give him better joy. O, what bliss, to go on journeys of discovery or to contrive to imitate birds' wings, and fly!—yea, that were the true thing to find! Father was right, and so was mother; 'tis truth doth hold the world in shape.

"The younger brother was of a quieter mind, and lived but in his books; did he read of Jacob—how he clad himself in sheepskins to resemble Esau and therewith to wrong him of his right of birth—in anger the boy clinched his little hand, vexed at the fraud; did he read of tyrants, and the wrong and misrule that reign in the earth—tears filled his eyes. Thought of the right and of truth, that ought and were to triumph, swayed him mightily. One night the little one had gone to bed; but the curtains hung awry, and let in some light upon him, by which he lay with book in hand, and read to end the history of Solon.

"And thought did lift and bear him strangely on, 'twas as if the couch had grown into a vessel under sail—was he dreaming? or what meant it else? He glided over rolling billows—coursing swift athwart the sea of ages; his ear caught Solon's voice, proclaiming, in the stranger's tongue—and yet the boy did understand—the Danish motto: 'Justice buildeth up a land.'

"And the Genius of Humanity stood in the midst of the lowly chamber, bowed over the boy, and left a kiss upon his brow: 'Be strong in glory, and strong in the battle's heat; with truth fixed in thy breast, go forth on thy way unto the home of truth!'

"The elder brother was not yet abed; he stood at the window, gazing out upon the mist that arose from the plain; they were not elves, a-dancing over yonder; the old nurse, 'tis true, had taught him so; but he knew better; they were vapors, warmer than the air, and hence they arose. A shooting-star lit up the sky, and the boy's thoughts were instantly gathered up from the mists of earth, into the region of the shining meteor. The stars twinkled in the firmament, and it was as if golden threads were floating from them to the earth.

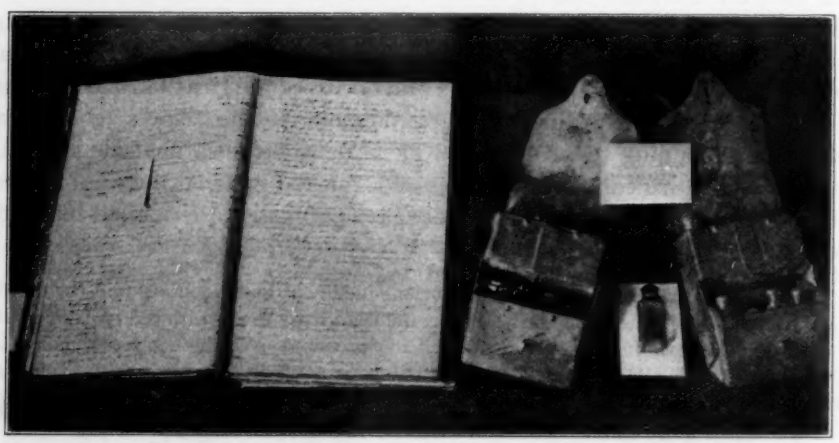
"'Come with me!' it sang and rang in the boy's heart, and the Race's mighty Genius bore him—swifter far than bird or arrow, or aught of earth that flies—out into Space, where ray on ray from star to star bound all the rolling globes to one another; the earth was spinning in the rare empyrean city crowding close on city. Through the spheres resounded—

"What is space, and where is distance, while the lofty spirits of Thought bears thee on high?

"And again the youth was at the window, peering forth, and the younger brother lay abed, and their mother called them by their names:

"'Andrew and Hans Christian!'

"Denmark knoweth them, the world knows both the brothers.—Oersted."



Dr. Sappington's Prescription Book and the Saddle Bags from which, traveling on horseback, he distributed the first quinine used in the Mississippi Valley—"Proceedings of the Celebration of the 300th Anniversary of the First Recognized Use of Cinchona."

THE DEPARTMENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

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TWO STATES ENACT COLLEGE PREREQUISITE.

South Dakota and Maine have amended their pharmacy laws to require graduation from a recognized college of pharmacy for entrance to examination as registered pharmacist. Thirty-eight states now require college training for entrance to examination. Surprise was expressed by those in charge of the bills in both states at the ease with which passage was accomplished. In each state, there were only a few votes against these measures. Such success is not accidental, however. When the campaign is well mapped out in advance, gaining the support of the pharmacists of the state by showing the necessity for such legislation, and the bill is drafted with fair exemptions and no freak provisions, success is almost certain.

A struggle was expected in South Dakota on account of past experience with the legislature, and the board of pharmacy and the prominent pharmacists of the state stood solidly behind the bill. Four pharmacists are serving in the legislature, two in the Senate and two in the House, and our old friend, now Senator L. E. Highley, was chairman of the Food and Drugs Committee. Senator Highley is well known to N. A. B. P. members, as he served on the South Dakota Board of Pharmacy for several years and was active nationally. South Dakota stresses the fact that protection of public welfare was the only reason given for enacting the prerequisite, and that if other states would emphasize instead of neglect this argument, there would be no difficulty in enacting beneficial legislation.

President Charles S. Pierce of the Maine Board in commenting on Maine's success says, "I almost wish now we had tried for more, but we remembered what you said about not trying for too much at one time." When he hears that two ambitious states, Oregon and West Virginia, introduced a complete new pharmacy law which was defeated, thus gaining nothing, I am sure that he will be glad Maine did not attempt more. Of course, the present law remains in both Oregon and West

Virginia. However, by introducing an amendment to the existing law covering store registration, use of term "pharmacy," etc., the college prerequisite where not already enacted, etc., the existing law can be remodeled and by the end of several sessions a new law has been practically accomplished. Only in rare instances has a complete new law been successfully enacted. Opposition develops from various sources to different sections, and the combined opposition defeats the measure. When separate amendments are introduced to sections of the law, there is scarcely ever enough opposition to any one section's provisions to cause defeat. With the prerequisite enacted, Maine can proceed to straighten out a few more points at the legislative session two years hence, if desired.

In South Dakota, the prerequisite specifies graduation from the four-year course in pharmacy, plus one year of retail pharmacy experience. Exemption is provided for those engaged in the practice of pharmacy for a period of one year prior to passage, and such persons can be examined under the old requirements until July 1, 1933. A second measure was also passed, providing for the annual registration and licensing of pharmacies, with a fee, proceeds of which are to be used to employ a full-time inspector; the use of the terms "pharmacy, drug store," etc., are limited to stores under the supervision of a registered pharmacist; an ownership clause limits the ownership of pharmacies to registered pharmacists but exempts stores now operating and provides for the operation of stores in estate or by heirs of a deceased owner. The law contains a clause which provides that should any part be declared unconstitutional the remainder shall not be affected—very wise in view of recent court decisions on ownership legislation.

The main prerequisite follows the N. A. B. P. model law propositions almost word for word, specifying graduation from a recognized college of pharmacy without mentioning the number of years of attendance, and providing a maximum credit of three years of college attendance on required four years of training—thus automatically making the minimum experience requirement one year. This takes care of three-year graduates until the general four-year course graduates are ready for board examination. Exemption is provided for those who have been employed in a retail pharmacy at least six months prior to the time when the act becomes effective, and these are given a period of five years time in which to file proof of four years of experience and pass the board examination. There are a number of other changes in the law, also a section providing for annual store registration and $2.00 fee therefor.

The remaining ten non-prerequisite states (note how the number is dwindling) should take courage from the experience of Maine and South Dakota. Prerequisite bills are being attempted by Arizona, Georgia, Massachusetts and Missouri.

H. C. C.

FIVE DISTRICT MEETINGS HELD.

Joint meetings with college faculty members have been held in five N. A. B. P. districts—Nos. 1, 2, 3, 4 and 6. Those districts that have established the habit of holding these meetings look forward to it as an annual event not to be missed.

The New England States (District No. 1) held a meeting at the Massachusetts College of Pharmacy, Boston, Mass., on December 3–4, 1930. Vice-President Gilbert of the Connecticut Board presided for the N. A. B. P., and Chairman W. Henry

Rivard of the Rhode Island College of Pharmacy presided for the colleges. Twenty delegates from five states were present. Mimeographed copies of the minutes of the meeting have been published. The various subjects in the board of pharmacy examinations were the principal topics for discussion, and a resolution stressing the importance of the practical pharmacy and pharmaceutical arithmetic examinations was adopted. A resolution urging the adoption of the college prerequisite by the remaining New England States was given unanimous approval. The Massachusetts College of Pharmacy entertained the delegates at a luncheon.

District No. 2 (New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia) held its meeting at the Hotel Du Pont, Wilmington, Del., on March 9–10. Vice-President Lloyd N. Richardson of the Maryland Board presided for the N. A. B. P., and Chairman Hugh C. Muldoon of Duquesne University presided for the colleges. This district functions in a very efficient manner, having standing committees on Program, Pharmacy, Materia Medica, etc., which are active through the year in planning for the meeting. A number of definite recommendations on Materia Medica were approved for state board examinations. Excellent papers on a variety of subjects were read, which will be published in the mimeographed report of the meeting as soon as possible. The Q-S Club entertained the delegates and guests at a banquet.

District No. 3 (Ohio, Kentucky, Indiana, Illinois, Michigan, Wisconsin) held its annual get-together at the Fort Shelby Hotel, Detroit, Mich., on February 25–26, with Vice-President Clare Allan of the Michigan Board presiding for the N. A. B. P., and Chairman Franklin J. Bacon of Western Reserve University acting for the colleges. The meeting was well attended, each state having delegates present from both the board and the colleges. This year the program was presented by the colleges and consisted of papers by Dean Edward Kraus, University of Michigan; Dean C. B. Jordan, Purdue University; Prof. Crandall, Detroit Institute of Technology; Dean R. T. Lakey and Dr. Leonard A. Seltzer, College of the City of Detroit. Most of these dealt with the curriculum for the four-year course. Secretary Christensen of the N. A. B. P. read a paper comparing the educational and entrance standards in the various states of the district, and discussion of the points brought out in this paper occupied the major portion of the first session. The Michigan Board entertained the delegates at the Norton-Palmer Hotel at Windsor; and Parke, Davis & Co. tendered a banquet at the Statler on Thursday night.

District No. 4 (Minnesota, Iowa, North Dakota, South Dakota, Nebraska) met at the Hotel Lowry, St. Paul, Minn., on Wednesday afternoon, Feb. 18, Vice-President George E. Sherman of the South Dakota Board presiding. Chairman E. R. Serles of the South Dakota State University was unable to be present at the meeting. Fifteen representatives were present from five states. Dean Wulling of the University of Minnesota presented a list of subjects, each one of which he discussed briefly in an introductory manner: (1) Commercial courses; (2) Drug store experience should be defined and standardized; (3) Examination questions should not be given identical but relative values; (4) Should state colleges of pharmacy examinations and state board examinations be merged? (5) Should credit value be given to special lecture courses? (6) Should a degree higher than the B.S. in pharmacy be given to students who voluntarily complete the two years of junior college and three years of technical work in pharmacy, constituting a five-

year course? If so, what degree? (7) Should physical education be required in the pharmacy curriculum? (8) Assistant pharmacist; (9) Reciprocal registration. A general and animated discussion of these topics took up the entire session, and the existing good will and understanding were enhanced and strengthened by the meeting.

District No. 6 (Arkansas, Kansas, Missouri, Oklahoma, Texas) met at the Arlington Hotel, Hot Springs, Ark., February 15–16, Vice–President Mac Childs of the Kansas Board presiding for the boards, and Chairman L. D. Havenhill of the Kansas University acting for the colleges. Dean D. B. R. Johnson of the University of Oklahoma read a paper on "The Trend of Pharmaceutical Education," the discussion being led by Dean Charles E. Caspari of the St. Louis College of Pharmacy. Secretary Christensen of the N. A. B. P. spoke on the general subject of Reciprocity at the afternoon session. Delegates from all five states were present.

STATE BOARD NEWS.

Alabama.—Secretary Bingham reports that the new pharmacy bill passed the Senate before recess and is on the House calendar for April 1 on reconvening. He comments, "We had to swallow some amendemnts that greatly decrease our revenue, we get no revenue from the State, but it is an improvement over our present pharmacy law."

Connecticut.—The Board as well as the College of Pharmacy have been fighting an attempt to amend the exemption to the college requirement which at present permits only those with experience prior to January 1921 to take examination. The proposed amendment permits any one with four years of experience in pharmacy to take examination until May 31, 1932, when the exemption expires. The measure is backed by the operator of a quiz school in Connecticut who is collecting money from the drug clerks of the state to sponsor the measure. This man, incidentally, has been exposed as the operator of fake diploma mills in a number of states. Object, of course, in this attempt is to do a big business in review courses by making more apprentices eligible to take examination without college training. The character of the sponsor and his connections have been exposed and there does not seem to be much danger of passage with the state pharmaceutical association on guard. (NOTE: Word just received at time of going to press that the bill was rejected in committee on March 26.)

Idaho.—Charles Laurenson recently resigned as Director of the Bureau of Licenses of the Department of Law Enforcement, after eight years of efficient service and coöperation with the N. A. B. P. He has accepted the secretaryship of the Chamber of Commerce of Caldwell, Idaho. Mr. Emmitt Pfost succeeds him as Commissioner of Law Enforcement.

Kansas.—The legislature adjourned without passing any legislation pertaining to pharmacy. Consolidation of professional boards was suggested, but due to the opposition of the professions, the measure was exposed as a political gesture rather than an economy and the bill was reported unfavorably by the committee, nothing further being heard of it.

The next examination will be held at Lawrence, Kansas, on June 10, 11, and 12.

Two of the members of the Board are up for re-appointment, Percy S. Walker, of Topeka, and Mac Childs, of El Dorado, but to date the Governor has made no appointment. Mr. Childs is Chairman of N. A. B. P. District No. 6.

Every pharmacy in the state has had a preliminary inspection and notice of any violations was sent in writing. A second state wide inspection will be made and every store which has not complied with the law in every respect will be prosecuted. The Board is determined that every pharmacy in Kansas shall be in charge of a registered pharmacist permanently.

Maryland.—The Maryland Board of Pharmacy conducted examinations for full and assistant registration at the School of Pharmacy of the University of Maryland on Monday and Tuesday, Feb. 2 and 3. There were 22 candidates for full registration and 33 for assistant registration. Six colleges of pharmacy were represented.

The Board, in conjunction with the Maryland Pharmaceutical Association and other groups, has prepared amendments to the pharmacy law for the purpose of abolishing assistant

registration; for more adequately defining a pharmacy, and for more clearly stating the rights and privileges of general merchants. (These were passed by unanimous vote of the Legislature.)

Massachusetts.—"The Apothecary" reports House Bill No. 594, known as the prerequisite bill, withdrawn in committee: "Franklin Union representatives were the chief opponents. They argued that educational qualifications indicated by a degree or a certificate of graduation from a college of pharmacy was not necessary for the protection of the public or the advancement of pharmacy. They endeavored to create the impression that the measure was college bred." The Massachusetts Pharmaceutical Association had obtained endorsement of the bill from 1200 owners of pharmacies, and pointed out the danger of cram school students being filled with examination information to "get by" the board. Apparently, a few won out over the majority again.

Missouri.—House Bill 408 has been introduced in both branches of the legislature and deals solely with the college prerequsite. The bill follows the N. A. B. P. model law propositions, Section No. 7, and requires college graduation, allowing a maximum credit of three years for college time on the required four-year training period, thus automatically making one year the minimum experience requirement. Little opposition to the bill has arisen. The Legislative Committee, the Kansas City Retail Druggists' Association, and the Board of Pharmacy have approved it.

Nebraska.—The Bureau of Examining Boards announces an examination of the Nebraska State Board of Pharmacy to be given June 16–19 at the Creighton College of Pharmacy, Omaha.

Nevada.—Howard M. Skeels of Reno, has been appointed a member of the Board of Pharmacy by the Governor, succeeding H. H. Turrittin recently deceased.

The next examination is announced for May 11.

New Hampshire.—James L. Dow, secretary of the New Hampshire Board of Pharmacy, writes us that he recently filed his resignation as a member of the New Hampshire Board to take effect on April 1, having served for some fifteen years.

As Mr. Dow has taken an active interest in the N. A. B. P., we shall regret his retirement from active service, although he remains an honorary member, of course.

New Jersey.—The Board of Pharmacy of the State of New Jersey announces that hereafter semi-annual examinations will be given in April and October for both the "Registered Pharmacist" and the "Assistant Pharmacist" certificates in place of the examinations formerly conducted in January and July.

It has been found inconvenient for candidates as well as examiners to conduct examinations in January and July. The January examinations generally interfered with mid-year examinations at the colleges of pharmacy and with the work incident to the annual renewal of registration at the Board office. The July examinations came at the worst time of the summer as far as weather conditions and vacations are concerned, and many applicants requested a change on this account.

In order to effect the change in the examination schedule with the least inconvenience to all concerned, the Board will conduct examinations for "Registered Pharmacists" on April 9, 1931 and October 15, 1931, and for "Assistant Pharmacists" on April 10, 1931 and October 16, 1931. Applications must be in the hands of the secretary at least 30 days before the date of the examination.

Ohio.—Out of 40 applicants taking the January examination, 17 were successful. The highest grade made in the examination was 86.8 per cent, by Sidney Lewin of Cleveland, a graduate from the College of Pharmacy, Ohio Northern University. A reciprocal certificate was granted to Sister M. Caspara Averdung of Cleveland, upon her Indiana license.

Report of the examination held in Columbus on April 7 and 8 will be published later.

R. C. Knisely of Ravenna has been re-appointed a member of the Board by Governor George White for a five-year term ending March 31, 1936.

Secretary Ford of Columbus buried his mother on March 16th. She died of heart trouble and was found dead in bed. The death was a shock to all, as she had not been ill. Mrs. Ford was 72 years of age and resided on a farm near Lima, O. She is survived by her husband and five sons. Sympathy is extended to Secretary Ford in his bereavement by his many N. A. B. P. friends.

Oklahoma.—C. M. Brewer has been appointed Secretary of the Oklahoma Board of Pharmacy to succeed C. M. Anderson. Address all communications to Mr. Brewer at the State Capitol, Oklahoma City, Okla.

Albert Eaton of Weatherford is president of the Board; W. C. Alston of Checotah, vice-president; and Roy L. Sanford of Enid, treasurer.

As a result of the February examinations, the names of 11 pharmacists have been added to the roster.

The Oklahoma Pharmaceutical Association will meet at Clinton, on April 21–22.

Oregon.—Linn E. Jones, a pharmacist of Oregon City, has been appointed as secretary of the Oregon Board of Pharmacy to succeed Frank S. Ward of Portland, on May 20. Mr. Linn has served six terms in the state legislature and has been of great assistance on pharmacy legislation.

A complete new pharmacy law, patterned after the N. A. B. P. model law propositions, was introduced at this session of the legislature and defeated in the House of Representatives.

Senate Bill No. 340, unfortunately, did succeed in passing and shows the necessity for constant vigilance in order to retain the higher educational requirements which have been enacted. Similar attempts were made this year in several other states, the provisions reading somewhat differently, however. This bill, as originally presented in the legislature, changed only one word—"twenty" to "ten." The Oregon college prerequisite section contained an exemption for any person who had resided in the state for ten years and could prove twenty years of retail pharmacy experience. Similar twenty-year experience registration is provided by a few other states, especially in the West, but of late the tendency has been to repeal such sections. In Oregon, however, the twenty-year period has now been shortened to ten years, and therein lies the joker. The law was changed to read "registered assistant pharmacist" instead of "person" (by legislative amendment) thus necessitating the applicant to take the assistant examination first instead of registering on experience only. The requirement for entrance to the assistant examination is three years of retail pharmacy experience; the age limit is 18. Thus, an Oregon boy of fifteen can start his apprenticeship and by the time he is 25 have the required ten years of experience necessary for a full registered license without any examination other than that of the assistant taken when he was 18. This is our own interpretation of the law, inasmuch as the ten years of experience for "R.Ph." registration are not limited to a period subsequent to registration as an assistant; if the applicant for registration on experience is an assistant pharmacist, has resided in the state for ten years, and can prove ten years of experience under the supervision of an "R.Ph." he is entitled to an "R.Ph." license, apparently without any further examination by the Board. Such registrants will not be entitled to reciprocity with other states, as they are registered "on experience" instead of by "registered pharmacist examination" as required in the general rules for reciprocity. Thus the problem becomes one which Oregon herself must work out as such men can practice only within the state. The result will be a constantly growing class of pharmacists registered on lower standards.

As the graduation requirement has been in effect for almost ten years, exemptions at this time should be repealed rather than liberalized. Such action is unfair to those who have been qualifying with college graduation in the meantime. If our interpretation of the law is correct, there is little incentive for a man to qualify for examination as a registered pharmacist by becoming a graduate of the four-year course (unless he desires to protect his reciprocal privilege) when he can save the cost of a college education, get an assistant license at 18 years of age and a full registered license without further examination when he is 25. The inconsistency is that the trained college graduate is obliged to pass a much more difficult examination as a test of his ability than the experienced candidate who has little theoretical knowledge. The danger is apparent. Certainly the pharmacists of Oregon overlooked the real intent of this bill or they would have fought its passage. H. C. C.

Pennsylvania.—At the January 1931, examinations given by the Pennsylvania Board of Pharmacy, 87 applicants took the pharmacist examination and 124 applicants took the assistant pharmacist examination.

There were 48 successful pharmacist applicants and 83 successful assistant pharmacist applicants.

Report of the examinations held at the Philadelphia and Pittsburgh Colleges of Pharmacy on April 9–11, will be included in the next Department.

South Carolina.—Twelve candidates were successful in the examination held March 18 and 19. The next examination will be held in Charleston, S. C., on June 17 and 18.

Mr. C. E. Powe, of Hartsville, has been appointed to succeed Ransom J. Williams, of Mullins, retired.

The legislature is in session, and a bill repealing the present exemption from college graduation for those with ten years of experience is being considered, which requires that after Jan. 1, 1933, every candidate for board examination must be a graduate.

Tennessee.—An examination was held on March 16 and 17 with 40 candidates present. Of this number, 29 passed, 10 receiving R.Ph. licenses and 19 assistant certificates.

Texas.—At the examination held in San Antonio, January 20–23, there were 184 candidates, of which number 66 made satisfactory grades and were licensed.

The next examination will be held in Beaumont on May 20–23. On account of the great distances in the state, the Board is obliged to cover all parts of the state in its examinations for the convenience of applicants. This prohibits the establishment of a laboratory for practical examinations. Nevertheless, the Texas Board gives a splendid practical examination and carries all the necessary equipment of the very best type obtainable to the different points, in portable form. An order was recently given to the Torsion Balance Company of New York for six pairs of prescription scales fitted in carrying cases. The new equipment will be used at the Beaumont examination. The first day is devoted to actual prescription compounding, upon which the applicants are graded. Around 200 candidates are expected at the coming examination.

The Texas Board of Pharmacy consists of six members and a secretary. The sixth member is a requirement of the new pharmacy law. The Texas Board of Pharmacy also maintains two traveling inspectors who cover the state, which is divided into North and South Texas, the dividing line being the Texas and Pacific Railroad from Texarkana on the East to El Paso on the West, a distance of over 700 miles.

Under the prerequisite law recently enacted, non-graduates were given one year in which to register with the board signifying their intention of appearing for examination prior to June 18, 1934 when the exemption from graduation expires. Over 3000 registrations were received to June 18, 1930 when the period for such registration ended.

West Virginia.—Roy Bird Cook reports: "For sixty days we have been scrambling around in the legislature here with a drug bill, a counter veronal bill, and a lot of drug store 'nuisance' taxes. None of them passed, and now we are having trouble securing some funds for the board."

A complete new pharmacy law was introduced in the legislature which, among other features, contained a two-mile limit provision on patent medicines and a permit for general stores outside the limit. This feature brought the opposition of the wholesale grocers and defeated the entire bill, which included a badly needed store registration section, proving that the advice of the N. A. B. P. to try amendments first is sound.

Secretary Alf Walker who has been in poor health for a number of years is reported improving.

President S. M. Scott, Jr., of the Board has returned from a trip to the Florida orange groves.

ADVERTISING ADVERTISING.*

No advertisement can advertise advertising unless it exhibits the art of the printer to advantage. This includes—freedom from error, proper proportion,

* Parts of an address by E. G. Eberle delivered before Dallas Advertising League about two decades ago but some of the thoughts are applicable to-day, hence, liberty is taken in printing the address (title was given by the League). The radio has come into the picture and granting that little exception can be taken to most radio advertising there is opportunity for improvement and for the benefit of all concerned, including the public. Much of the radio advertising conveys useful information and, certainly, without returns the advertisers could not afford to render the entertaining and instructive programs, but the advertisers should see to it that their publicity is advertising *advertising*.

distinct, readable type. Many an advertiser has spent hours of time and much money and then was rewarded negatively by having all of this endeavor and expenditure come to naught because the mechanical part of the advertisement was faulty in proportion, type, ink or paper. Many an advertisement has proven ineffective because of these deficiencies, or even because it was located next to an advertisement that was defective.

If we would advertise advertising then everything concerned with advertisements must, as nearly as possible, approximate perfection, or at least measure up to a standard. The advertiser who does not secure such consideration is not receiving expected value and the advertisement has not advertised advertising.

You may say we cannot expect all of this. I ask, why not? Does not the Food and Drugs Act make a related demand in the preparation and selling of a medicinal preparation—from the man who gathers the drug to the one who gets up the label, that within reason there be no defect, no error? The Act makes the manufacturer responsible for each and every bottle or package of his product. How many hands does such a preparation sometimes go through? Occasionally a score or more, and what would happen if somewhere along the line a mistake was made? Take into consideration a large manufacturing house, shipping throughout the world a product containing a very active drug—and shudder. What happens in such an establishment if a man makes a serious mistake? He does not ask—he simply goes to get his pay. It is part of the system of advertising, and advertises advertising.

Inconsistencies through association must be removed. As bad company is apt to do injury to the individual, so a good advertisement in bad company suffers; reversely, the bad advertisement may profit. To advertise advertising, therefore, assurance must be given the advertiser that his copy will not get into bad company, next to an advertisement which everyone who is informed recognizes as presenting a fake proposition. Such indifference advertises advertising disadvantageously. The advertiser says, "The reader will judge mine by its neighbor, as he has a perfect right, and the reader who recognizes the fake passes judgment through the one he is informed of."

Further than this, the reading matter has a relation to the advertisement; at least there should be no serious incompatibility. What should a newspaper for the home be? What has the advertiser a right to expect? Is it fair that his advertisement appears in a paper which supports disreputable propositions, perhaps the very kind he is endeavoring to displace without talking openly against it, because some might consider this the ravings of a competitor? Inconsistencies of this kind must be removed; moral discourses in the reading pages and immoral and untruthful advertisements elsewhere are incompatible. I am comparing the advertisement with the acts of a gentleman you would introduce into your home. If you subscribe for a family paper you cannot go through it and clip out the objectionable matter, for certainly your children will find out what has been clipped from it. The reader draws his deductions and applies one to the other. It is advertising advertising, for, after all, the consumer is the man you want to reach with advertising, and he tells by word, act or silence whether the money for advertising has been well invested; in other words, it is through him, largely, that advertising is advertised.

The publisher is guilty, if not culpable, as an accessory, if he promotes propositions whereby his readers suffer or lose. The folly of misstatement along certain lines was exposed by the Food and Drugs Act. *I do not concede that all regulations and dictates of the department are right or necessary*, but what a difference this law made in the construction of labels on hundreds of preparations, many of which ceased to exist, evincing faulty advertisement, and expressing very emphatically that advertisements must tell the truth, or harm will sooner or later overtake the promoter. These manufacturers could not be convinced of the error of their ways by argument; it required the big stick. They were advertising advertising disastrously.

The editor, posing as a reformer—the paper presenting editorials and other contributions with fervor that is appalling and then including in its advertising pages copy that is unquestionably incompatible with such reading matter, is inconsistent, and, though the publishers subject themselves to writer's cramp, will rightfully be charged with inconsistency. This speaks more forcibly than their argument that at heart they do not believe in the honest value of advertising; they are false to what they seemingly profess and attempt to teach. What success could a merchant expect if he acted with such indecision? I have seen advertisments in papers, presumed to be respectable, asking for samples of secretions from which diagnoses would be made. To some of these hold-up advertisers, fictitious samples were sent, not even resembling the natural but by early mail came very complete diagnoses from them. Such advertisements are, perhaps, worse than any other; they are disappearing—but are not other deceiving propositions almost as bad? What deductions must the intelligent person, the customer who is valuable to the advertiser, make? Only that such advertising is a means of selling dishonorable products. To advertise advertising there must be sincerity and consistency, the reading public must be convinced that they can rely on the truthfulness of an advertisement as safely as on the reading matter.

It is because people rely on the truthfulness of publications, of the publisher or editor, that fake concerns often patronize the paper or magazine, realizing that the readers will believe every word of the pages. Some of these publications have for years drawn pensions, for such they are, before they become conscious that such advertisements hurt their cause, and then they condemn vehemently that which they have helped to build up—desert their friends in time of trouble. Such have been some of the conditions which it has been necessary to correct so that advertising might be advertised without blush or excuse. Education of the public is far better as a corrective than extremes in legislation. No government, no business, can long exist if it is only good because it is compelled by force, or terror of law. The man engaged in whatsoever pursuit is the best citizen if he does right because he desires to do so. Every publisher can keep his columns clean; hundreds are doing it because they believe it is just and right and a paying policy to adopt. This is a reform more genuine and more effective than any statute and will more effectively accomplish all that critics of advertising could wish. We need men of character, and too much legislation is destructive to character.

It is a matter of impossibility to sell goods by advertising alone, *i. e.*, continuously and to a profitable limit. A manufacturer must have coöperation and

this is best obtained by giving the retailer a living profit, otherwise he will surely try to sell an article which yields a reasonable profit. Many have tried to force sales, but the failures do not differ greatly in number from the successes. Co-operation is one of the most important aids to advertising; it is part of the scheme. It is best, perhaps, for a retailer to sell advertised goods, provided he is given the profit margin that he is entitled to, because a manufacturer who advertises, if he has good sense, advertises the article because it has merit, because it is all he claims for it and possibly, more. The advertisement benefits the seller. In some cases, by no means all, perhaps only a few, the manufacturer who does not advertise exhibits fear of publicity. There is no particular hurt if such a manufacturer changes the quality of his goods. Often there is more confidence to be placed in a trade-marked, copyrighted or even patented article, because to derive value therefrom, the manufacturer must associate merit with it. You know what you are going to get when you buy a certain advertised brand of hat or shoes. How quickly would the effectiveness of and expenditure for advertising come to naught if there was deviation from the accustomed quality? Advertising begins with the selection of the crude material, continues to the wording of the label, its style, the shape and manner of putting up the finished article, aye, until the article is worn to a frazzle or has suffered physical extermination.

The advertising of advertising can be promoted by pointing out extensions or creating new fields for development. The Government issues reports relative to trade possibilities, new necessities, etc. This idea can be advantageously adopted locally as well as nationally and internationally, and advertisers interested thereby. Manufacturers should be impressed with the value of sectional advertising, as well as national advertising. Everyone reads the home paper more carefully than that from other sections and this obtains also with technical papers. In other words, advertisers should speak through the mediums of the territory in which they are endeavoring to create demand whether that be local or international. An extended scope implies the advertising of advertising.

The advertiser should, perhaps, more fully recognize relative values of publications. A circulation among readers of whom ten per cent or less might be prospective customers is not as valuable as a medium with a very much smaller circulation which reaches a much greater percentage of prospective buyers. Concentrated endeavor promotes the advertisement of advertising.

Above all, let us advertise advertising by purifying it, make it as readable, educating, valuable and trustworthy as any other portion of the paper. This is essential and the most potent advertisement for advertising. The power, value and responsbility, commercially and educationally, have, even now, not been fully appreciated. The greatest hope in this direction lies with the reader and he will sooner or later respond. Let us hope that the change will continue progressively so that, eventually, all publishers will recognize their responsibility in the advertising pages and that they will sooner or later suffer through continued dereliction. The large majority will soon appreciate that in sending their publication to merchants, manufacturers or into the homes, means their indorsement which should have the same honorable consideration as a recommendation to business connections or introduction to their families or friends. Thereby advertising will be advertised and the results of advertising will be profitable and elevating.

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

COMMENTS, QUESTIONS AND SUGGESTIONS ARE INVITED AND WELCOME.

Readers are invited to submit comments, criticisms and suggestions regarding the material which appears in this department. The Editor will also undertake to answer questions regarding general problems of business management. Letters of general interest will be published, but the writer's name will not be revealed without his permission.

ETHICS IN RETAIL STORE MANAGEMENT.

Thursday night was the favorite night for chain store advertising in Martintown. The great Federated Stores had taken a whole page in the *Martintown Bugle* to feature the low prices at which popular identified merchandise was to be offered over the week-end. The biggest and the blackest type announced that a very popular tooth paste was to be sold for 25 cents a tube, just one-half its regular price.

Individual competitors of the great Federated Stores—competitors who did not regularly make cut prices their principal selling appeal—once more gnashed their teeth in mortal anguish. Twenty-five cents for this popular fifty-cent tooth paste was below the lowest known wholesale cost. Either the great Federated Stores had obtained a special and secret concession or they were deliberately using this tooth paste as a loss leader in an effort to convince the people of Martintown that theirs were the stores at which prices were always lowest.

Follow us now to the glistening, sparkling Federated Store on one of the busiest corners in the center of Martintown. It is Friday morning. Sure enough, the popular tooth paste is on display, but the great red and white price ticket above it reads, "Special—31 cents."

We overhear a woman customer indignantly saying, "Why, you advertised that last night for 25 cents."

The salesman is apologetically explaining to her, "I'm sorry, madam, you see those advertisements are made up at headquarters and we haven't yet been told that the price is 25 cents. However, if that is what the advertisement says, you can, of course, have the tooth paste for 25 cents."

We see other people buying the tooth paste and paying 31 cents for it. We wonder what they will think if, when they get home, they chance to pick up last night's *Martintown Bugle* and read that the Federated Stores offer to sell the tooth paste for 25 cents. We can also hear the telephone wires of Martintown buzzing with the conversation of bargain-seeking housewives.

"Why, did you pay 31 cents? They advertised it, you know, for 25 cents. I'd take it right back. Those people aren't to be trusted, are they?"

Nobody but the manager of this store and his salespeople knew of a meeting which had taken place at 8:30 Thursday morning before the store opened.

The manager has the floor, as he usually does in meetings with his salespeople.

* Lecturer on Business, Columbia University and Philadelphia College of Pharmacy and Science.

"This store is not making the showing that it should. We ought to be doing twice the business we are doing here and making twice the profits. It's up to you people to do something about it. If you don't, there won't be any jobs here for you or for me either. This store isn't going to stay open long if it doesn't make money. Now there is a big ad appearing in the *Bugle* to-night offering "Yujaw" tooth paste for 25 cents. That tooth paste costs us 28 cents and we have been selling it, as you know, for 31 cents. We will keep on displaying it and selling it for 31 cents."

"What if somebody comes in and says we advertised it for 25 cents," speaks up one of the manager's bright young men. "Why that's easy. I'm surprised at you, John."

Then followed the instructions to give the explanation which we overheard when we first walked in the store.

Before concluding that this is a damning indictment of the chain store method of doing business and that all chain stores should be forthwith legislated out of existence, listen to this.

Come with me to Patrick O'Callahan's drug store in a residential neighborhood in Martintown. Patrick O'Callahan, incidentally, is a man who at meetings of his fellow retailers speaks the loudest and longest on the chain store evil. In fact, creditors of Patrick O'Callahan are strongly of the belief that he is devoting so much of his time to keeping track of what his competitors are doing that he has precious little time left to operate his own business.

But here, after a long interval, comes a customer into Partick O'Callahan's store. Let's follow her in and listen to what she says to him and what he says to her.—"I'd like a tube of Massogum tooth paste," she begins pleasantly.

A look of incredulous amazement upon Patrick O'Callahan's face leads an unbiased observer to the belief that here is a man of histrionic ability who would be considered a find by a Belasco or a Shubert.

"My dear Mrs. Hurley, are your gums infected or do you want something to keep your teeth clean?" Any one who had seen the flashing white smile of the beautiful and charming Mrs. Hurley would have known the answer to that question, as indeed Patrick O'Callahan did.

The real difficulty was that Patrick O'Callahan had had a dispute about an invoice of the Massogum Company. When this had not been settled to his entire satisfaction, he had forthwith resolved that each and every customer who asked for that tooth paste in his store would be urged with all the power and fighting spirit at his command, to purchase a substitute or competing brand.

Of course, there is no such city as Martintown. There is no *Martintown Bugle*. There are no Federated Stores. There is no Patrick O'Callahan and there is no Massogum Company. Nevertheless, the incidents related above are all true, with the exception of the names and places used.

My purpose in relating these two incidents is to show that unethical, sharp and dishonest practices are not a characteristic of the chain stores as such or of individual stores as such. When they do occur, as indeed they do, unfortunately, there are the expressions of individual policies in management.

In the two instances reported above, the names, Patrick O'Callahan and Federated Stores, could be interchanged and the actions herein set down would be just as true.

This all leads to the general conclusion, which is coming to be more and more recognized by keen-eyed, sharp-witted merchants, that both chain stores and individual stores succeed not so much because of the particular form of their organization but because of superior management.

Superior management, either in chain stores or individual stores, is quick to recognize that unethical, sharp and dishonest practices are not only undesirable from the moral standpoint but that no business of lasting and permanent profitableness can be created on any but a policy of fair and honest dealing.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS.

ZINCI PHOSPHIDUM.

Zinc Phosphide.

A compound of zinc and phosphorus corresponding to the formula, Zn_3P_2—258.19.

Description and physical properties.—A grayish black, partially crystalline powder possessing a slight metallic luster. It has an odor and taste faintly resembling that of phosphorus.

Zinc Phosphide is insoluble in water or alcohol. It is soluble in dilute hydrochloric or sulphuric acid with the liberation of phosphine.

The specific gravity is 4.7.

When heated strongly in the air the compound glows and leaves a white residue of zinc phosphate.

Tests for identity: A solution of Zinc Phosphide in hydrochloric acid responds to the tests for zinc.

Tests for purity: Five-tenths of a gram of Zinc Phosphide is treated with 15 cc. of dilute hydrochloric acid. The compound dissolves and leaves only a slight oily gray film in the solution (*acid-insoluble impurities*).

A portion of this solution yields a white precipitate with potassium ferrocyanide T.S. (*iron or copper*).

With ammonium sulphide a white precipitate is formed (*lead or copper*).

When mixed with an equal volume of hydrogen sulphide T.S. the solution shows no color or turbidity (*arsenic, cadmium, lead, etc.*).

AVERAGE DOSE: Metric, 0.008 Gm.—Apothecaries, 1/8 grain.

BISMUTHI SUBIODIDUM.

Bismuth Subiodide.

Bism. Subiod. Basic Bismuth Iodide, Bismuth Oxyiodide

Bismuth Subiodide is a variable combination of bismuth, oxygen and iodine, chiefly the basic salt BiOI, and contains, when dried to constant weight at 100° C., not less than 30 per cent of iodine.

Descriptions and physical properties.—An orange-red to brick-red, amorphous or microcrystalline powder. It is odorless and tasteless, and is stable in the air.

Bismuth Subiodide is insoluble in water, alcohol, ether or chloroform. It is soluble in hydrochloric acid, first forming dark colored bismuth triiodide which then quickly dissolves to a yellow solution. Sulphuric acid or nitric acid causes decomposition with liberation of iodine.

Tests for identity: When heated in a porcelain crucible, Bismuth Subiodide darkens and gives off violet vapors of iodine, leaving, after prolonged heating, a light colored residue. When well mixed with several times as much dried sodium carbonate and heated in contact with charcoal, it is reduced to brittle globules of metallic bismuth. A solution of Bismuth Subiodide in a slight excess of hydrochloric acid, when mixed with a large volume of water, pro-

duces a white or yellowish white precipitate, which is blackened by the further addition of hydrogen sulphide.

Tests for purity: Boil 1 Gm. of Bismuth Subiodide with 20 cc. of a mixture of equal volumes of acetic acid and distilled water. Cool and filter. Add 2 cc. of hydrochloric acid, precipitate the bismuth by the addition of hydrogen sulphide, boil the mixture and again filter: the filtrate leaves not more than 0.005 Gm. of residue on evaporation and gentle ignition (*alkalies or alkaline earths*).

To 3 Gm. of Bismuth Subiodide in a dish add 3 cc. of nitric acid and heat on a water-bath, adding more nitric acid, as necessary, until the dark scales of separated iodine have completely volatilized. Bring up to the original volume with nitric acid; no insoluble residue remains (*insoluble foreign salts*). A white precipitate is produced when the solution is poured into 100 cc. of distilled water. Now filter, evaporate the filtrate on a water-bath to 30 cc., again filter the liquid, and divide the new filtrate into portions of 5 cc. each. These portions do not respond to the tests for *lead*, *copper*, *sulphate* or *silver*, under Bismuth Subcarbonas, U. S. P. X.

To 2 Gm. of Bismuth Subiodide in a porcelain crucible add 2 cc. of nitric acid and heat on a water-bath, adding more nitric acid, as necessary, until the dark scales of separated iodine have completely volatilized. On evaporation and ignition, the residue does not respond to Bettendorf's Test for *arsenic*, U. S. P. X, page 430.

Boil 1 Gm. of Bismuth Subiodide with 20 cc. of distilled water for one minute and filter: five-cc. portions of the filtrate yield no opalescence or turbidity at once on the addition of a few drops of nitric acid and silver nitrate T.S. (*soluble iodides* or *chlorides*), nor a red color on the addition of a drop or two of ferric chloride T.S. (*acetates*).

Add 0.1 Gm. of Bismuth Subiodide to 5 cc. of sodium hydroxide T.S. in a test-tube of about 40 cc. capacity, then add about 0.2 Gm. of aluminum wire; insert in the upper portion of the test-tube a pledget of purified cotton, and over the mouth place a piece of moistened red litmus paper, and then warm the tube on a water-bath during fifteen minutes; no blue color of the paper should be discernible (*nitrates*).

Assay.—Place about 0.5 Gm. of Bismuth Subiodide, previously dried to constant weight at 100° C. and accurately weighed, into a flask, add 30 cc. of tenth-normal silver nitrate solution, rotate to mix, and then introduce 5 cc. of nitric acid and again rotate the flask. Boil gently for about three minutes, add 50-cc. distilled water and allow to cool. Add 2 cc. of ferric ammonium sulphate T.S. and titrate with tenth-normal potassium thiocyanate until the supernatant liquid remains reddish after it is well shaken. The difference between the number of cc. of tenth-normal silver nitrate added and the number of cc. of tenth-normal potassium thiocyanate used, multiplied by 0.01269, represents the amount of iodine present in the weight of Bismuth Subiodide taken.

Preserve in closed containers, protected from light.

AVERAGE DOSE: Metric, 0.5 Gm.—Apothecaries, 8 grains.

BISMUTHI OXIDUM HYDRATUM.

Hydrated Bismuth Oxide.

Bism. Oxid. Hydrat. Bismuth Hydroxide

Hydrated Bismuth Oxide is bismuth oxide (Bi_2O_3) with a varying amount of water of hydration. When dried for twenty-four hours over sulphuric acid, it yields upon ignition not less than 89.60 per cent, nor more than 96.28 per cent of bismuth oxide (Bi_2O_3).

Description and physical properties.—A white amorphous powder, without odor or taste.

Hydrated Bismuth Oxide is insoluble in water and in alcohol. It is completely soluble, without effervescence, in nitric acid or hydrochloric acid, and in a mixture of glycerin and sodium hydroxide solution.

Tests for identity: Hydrated Bismuth Oxide responds to the reactions for bismuth U. S. P. X, page 440.

Tests for purity: Boil 1 Gm. of Hydrated Bismuth Oxide with 20 cc. of a mixture of equal volumes of acetic acid and distilled water. Cool and filter. Add 2 cc. of hydrochloric acid,

precipitate the bismuth by the addition of hydrogen sulphide, boil the mixture and again filter: the filtrate leaves not more than 0.005 Gm. of residue on evaporation and gentle ignition (*alkalies* and *alkali earths, iron, zinc,* etc.).

Add 3 Gm. of Hydrated Bismuth Oxide to 4 cc. of warm nitric acid: No effervescence occurs (*carbonate*), and no residue remains (*insoluble foreign salts*). A white precipitate is produced when this solution is poured into 100 cc. of distilled water. Now filter, evaporate the filtrate on a water-bath to 30 cc., again filter the liquid and divide the new filtrate into portions of 5 cc. each. These portions do not respond to the tests for *lead, copper, sulphate* or *silver* under Bismuthi Subcarbonas, U. S. P. X.

The residue resulting from the ignition of 2 Gm. of Hydrated Bismuth Oxide does not respond to Bettendorf's Test for *arsenic*, U. S. P. X, page 430.

Agitate about 0.05 Gm. of Hydrated Bismuth Oxide with 5 cc. of a solution of equal volumes of distilled water and ferrous sulphate T.S. and cautiously superimpose the mixture upon 5 cc. of concentrated sulphuric acid, U. S. P. X, page 484, in a test-tube: no brownish red zone forms at the line of contact of the two liquids (*nitrate*).

One gram of Hydrated Bismuth Oxide shows no more chloride than corresponds to 1 cc. of fiftieth-normal hydrochloric acid, U. S. P. X, page 462.

Assay.—Dry about 1 Gm. of Hydrated Bismuth Oxide over sulphuric acid for twenty-four hours, weigh accurately in a tared porcelain crucible, ignite at red heat and weigh the resulting bismuth oxide. The residue of bismuth oxide (Bi_2O_3) corresponds to not less than 89.60 per cent, nor more than 96.28 per cent of the original weight of Hydrated Bismuth Oxide taken.

Preserve in closed containers, protected from light.

AVERAGE DOSE: Metric, 1 Gm.—Apothecaries, 15 grains.

CERII OXALAS.

Cerium Oxalate.

Cerii Oxal.

A mixture of oxalates of cerium, didymium, lanthanum and other associated elements, which yields, when heated to redness, not less than 47 per cent of residue.

Description and physical properties.—A fine white or slightly pink powder, without odor or taste; permanent in the air.

It is insoluble in water, alcohol, ether and in solutions of potassium or sodium hydroxide; insoluble in cold, diluted sulphuric or hydrochloric acid, but dissolved by these acids when heated.

Tests for purity and identity: When heated to redness it is decomposed, leaving not less than 47 per cent of reddish brown residue.

Boil Cerium Oxalate with potassium hydroxide T.S.; an insoluble precipitate of hydroxides is produced. Filter and supersaturate the filtrate with acetic acid; the addition of calcium chloride T.S. produces a white precipitate, insoluble in acetic acid but soluble in hydrochloric acid.

From a solution of Cerium Oxalate in diluted hydrochloric or sulphuric acid, potassium hydroxide T.S. solution added in slight excess, precipitates white hydroxides, which do not redissolve in a larger excess of the reagent, but gradually turn yellow in contact with air. Ammonium carbonate T.S. added in slight excess to a similar acid solution produces a white precipitate of the mixed carbonates of cerium and associated elements, which is somewhat soluble in a larger excess of the reagent.

Dissolve 0.1 Gm. of Cerium Oxalate in 1 cc. of sulphuric acid and add 2 cc. of potassium sulphate T.S.; small, colorless crystals of double sulphates of potassium and the rare earth elements in the mixture are deposited after some time.

No effervescence occurs when Cerium Oxalate is dissolved in diluted hydrochloric acid (*carbonates*).

A solution of Cerium Oxalate (1 in 50) in diluted hydrochloric acid does not respond to the Test for heavy metals (U. S. P. X, page 439).

A solution of Cerium Oxalate (1 in 25) in hot dilute sulphuric acid (1 in 3) meets the requirements for the Test for arsenic (see U. S. P. X, page 428).

Boil 0.3 Gm. of Cerium Oxalate with 15 cc. of potassium hydroxide T.S. and filter. No precipitate is produced in 5 cc. of the filtrate by boiling with an excess of ammonium chloride T.S. (*aluminum*) or in another 5-cc. portion of the filtrate by the addition of sodium sulphide T.S. (*zinc*).

AVERAGE DOSE: Metric 0.5 Gm.—Apothecaries, 8 grains.

METHANOLUM.

Methanol.

Methyl Alcohol.

A liquid containing not less than 99 per cent by volume, at 15.56° C., of CH_3OH.

Description and physical properties.—A transparent, colorless, mobile, volatile liquid, with a characteristic odor, and a burning taste.

It is very easily volatilized at temperatures above 40° C. and boils at 64.5 to 66° C. It is highly inflammable and burns with a pale blue smokeless flame.

Specific gravity: not above 0.800 at 15.56° C.

It is miscible with water without any trace of cloudiness, also with ether, chloroform or alcohol.

Tests for identity and purity: Diluted with an equal volume of distilled water, it does not affect the color of moistened litmus paper.

Mix 25 cc. of Methanol with 10 cc. of alcohol and 25 cc. of water, add 3 drops of phenolphthalein T.S., and titrate with fiftieth-normal sodium hydroxide solution. Not more than 0.5 cc. of the latter should be required to produce a faint pink color.

Dilute 25 cc. of Methanol with 25 cc. of water and add 1 drop of methyl red T.S. Not more than 0.2 cc. of fiftieth-normal sulphuric acid should be required to produce a pink color.

Evaporate 50 cc. of Methanol in a platinum or porcelain dish and dry at 100° C. for one-half hour; the residue does not exceed 0.001 Gm.

On mixing 10 cc. of Methanol with 5 cc. of potassium hydroxide T.S., the mixture does not at once assume a yellow color (*aldehyde*).

Place 25 cc. of Methanol in a porcelain dish, carefully protected from dust, and allow to evaporate spontaneously until the surface of the dish is barely moist; no red or brown color is produced upon the addition of a few drops of sulphuric acid (*carbonizable impurities*).

Mix 10 cc. of Methanol with 5 cc. of distilled water and 1 cc. of glycerin and allow to evaporate spontaneously from clean, odorless, blotting paper; no foreign odor is perceptible when the last traces of Methanol have left the paper (*empyreumatic impurities*).

Cool 10 cc. of sulphuric acid in a small Erlenmeyer flask at 10° C. and add gradually with constant agitation 10 cc. of Methanol. No more than a slightly brown color should develop.

Cool 20 cc. of Methanol to 15° C., add 0.1 cc. of tenth-normal potassium permanganate and allow to stand at this temperature for ten minutes. The pink color should not entirely disappear.

To a mixture of 4 cc. of water and 5 cc. of alkaline mercuric potassium iodide T.S., add 1 cc. of Methanol. The turbidity produced should not be greater than that produced by 0.01 mg. of acetone in 5 cc. of water and 5 cc. of alkaline mercuric potassium iodide T.S.

To 10 cc. of Methanol add 0.5 cc. of aniline and 5 cc. of potassium hydroxide T.S. and heat the mixture to boiling. No disagreeable odor of phenylisocyanide (*poison*) should be emitted (*chloroform*).

Dilute 5 cc. of Methanol with 10 cc. of water and add 3 cc. of sodium hydroxide T.S. and 10 cc. of iodine T.S. Warm the mixture to about 40° C. and keep it at that temperature for 15 min. No yellow color or yellow precipitate should be apparent (*alcohol* or *acetone*).

AN ANNUAL SUPPLEMENT TO THE UNITED STATES PHARMACOPŒIA.*

BY F. W. NITARDY.

When, on the establishment of the first U. S. P., it was decided to revise that book once every ten years, medical progress was relatively slow so that such a decennial revision was adequate to meet purposes of keeping the book up-to-date and in harmony with the developments and progress made. In the one hundred and ten years that have elapsed since the Pharmacopœia was created, there has been a tremendous acceleration in the progress of the fundamental sciences on which it rests and there probably are more scientific contributions in any one year to-day than in ten years one hundred years ago. It is natural, therefore, that the Pharmacopœia becomes definitely out-of-date in reference to some items within a relatively short time. In view of its authoritative standing and legal position it seems highly desirable that some means should be provided which will make possible important changes in periods between appearance of successive decennial revisions so that it will not lag far behind in recognizing important additions to materia medica and utilizing scientific developments and research accomplishments which have a bearing on the tests and standards used in the Pharmacopœia.

The great majority of products recognized by the Pharmacopœia would not undergo important developments, but there always will appear a few products of great importance during a decade which are deserving of recognition and standardization and there are usually also a few products on which standards, processes or tests may experience great development or change. For instance, Insulin, Ephedrine and Viosterol have come into materia medica since the U. S. P. X appeared and have, as you know, assumed very important positions as remedial agents. Biological methods for determining the vitamin content of Cod Liver Oil and other substances have been greatly amplified. Such tests were so new at the time of the previous revision that what now appears to be a ridiculously low standard was adopted for the vitamin A in Cod Liver Oil. Satisfactory methods have been developed for determination of vitamin D, and the Pharmacopœia should no doubt raise its vitamin A standard of Cod Liver Oil, amplify the test method and add a standard and method for vitamin D.

It takes a long time to revise a Pharmacopœia. A new Revision Committee (has) will shortly be elected and before it can get organized and finish the work of revision another five years probably will roll by. It seems undesirable that such important additions and changes in the Pharmacopœia as those above referred to should wait until the U. S. P. XI can make its appearance. Several other items probably require attention, such as adjusting the p_H of Tincture of Aconite with a suitable acid and thereby stabilizing that preparation. No doubt the several years which will be used in revising the present Pharmacopœia will bring with them some new developments in science which will also demand the attention of the Pharmacopœia.

The work of revising the entire Pharmacopœia is such a large task that it probably will be impossible to revise it completely any more often than it is now revised, but it appears that all requirements of keeping it up-to-date and in har-

* Section on Practical Pharmacy and Dispensing, A. PH. A., Baltimore meeting, 1930.

mony with scientific advancement could be met by publishing an annual supplement. Such supplement, if published annually during the entire period which elapses between two decennial revisions, would result in the publication of approximately nine supplements for each Pharmacopœia. These supplements could be handled by the regular Revision Committee in exactly the same way as it handles the revision. Additions or modifications covered by such a supplement would probably not be difficult to prepare for publication for the reasons that only important items and changes would be thus taken care of, and there usually is so much scientific information available on these new and important developments that the Revision Committee should not encounter much difficulty in deciding on what should go into a supplement and getting it published on a scheduled date each year. Minor corrections or changes should not be made in such supplement as they would merely complicate the legal situation for the pharmacist.

I believe the Revision Committee to-day has the authority to issue such supplements and I believe that use was made of this authority on previous occasions, but not in recent years or since the U. S. P. X has appeared.

It would seem that a definite advantage would accrue from a thorough discussion of this subject and this is the reason for presenting this suggestion in the form of a paper.

ABSTRACT OF DISCUSSION.

Mr. Scoville said that the subject had been discussed by the committees of the last three revisions of the U. S. P.

Mr. Taylor expressed the opinion that important matters, such as new and better standards for Cod Liver Oil, for example, should receive early consideration. The discussions should receive general consideration before final action by the Committee.

Mr. Ruth was of the opinion that there was a possibility of clogging the machinery by too much discussion. The Committee on Revision can be relied upon to render decisions.

Mr. Gidley stated that there would be possibility, unless great care was exercised, of getting preparations into the Supplement, the use of which would be short-lived.

The author of the paper, in answering the speakers, could see no difference in having the Committee revise the standards for the Supplement and preparing them for the next edition of the U. S. P. He held that the Committees are very careful relative to inclusions, and this would apply to the Supplement as well as the Pharmacopœia. He did not think the "New and Non-official Remedies" would take the place of the proposed Supplement; while the N. N. R. had a moral value it had no legal status.

ECONOMIC CONFERENCE.

The Second Economic Conference will be held April 30th, at the Philadelphia College of Pharmacy and Science. The program includes the following speakers and their subjects: "What Can Be Done to Prevent the Sale of Active Therapeutic Substances by Those Not Qualified by Law," Robert L. Swain, Secretary of Maryland Board of Pharmacy. "The Merchandizing Area of Your Drug Store—How to Analyze and How to Develop It," George W. Colborn, retail pharmacist of Princess Anne, Md. "Proved Plans for Increasing Drug Store Profits," Paul C. Olsen. "What the Community Thinks of the Drug Store," Prof. Harvey P. Frank. "How Can the Druggist and the Physician More Effectively Coöperate?" V. C. Michels, Chicago. "The First Aid and Home Medicine Service of Pharmacy—Its Psychology and How It Should Be Handled," Dr. Francis W. Palfrey, Boston, Mass. "Windows Stressing Pharmaceutical Service—How Often Should They Be Displayed in a Community Drug Store?" Robert J. Ruth.

Educational and demonstrative exhibits will be a feature of the Conference.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council." —Part of Chapter VI, Article VI of the By-Laws.

Article III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meeting of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

BALTIMORE.

The Baltimore Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION held its monthly meeting on Friday, March 27th at the School of Pharmacy, University of Maryland, the members being guests of the faculty of Pharmacy on this occasion.

Dr. Marvin R. Thompson, Emerson Professor of Pharmacology and Therapeutics was the speaker of the evening. Professor Thompson's subject was "Biological Assay Methods," in which he described briefly those assays official in the Pharmacopœia, emphasized the high degree of sensitivity of these tests, and pointed out the fact that a pharmacological assay not only determines the active constituents of a drug, but demonstrates the presence or absence of therapeutically active foreign ingredients. Dr. Thompson supplemented his lecture with a very interesting and instructive demonstration, following which the members inspected the modern and adequate equipment of the School's Pharmacological Laboratory.

At the close of the meeting a buffet luncheon was served. The attendance, which was the largest of any meeting held this season, signifies an interest in the scientific phase of pharmacy that is quite gratifying.

WM. F. REINDOLLAR, *Secretary-Treasurer.*

CHICAGO.

Following a dinner in the Dutch Room of the La Salle Hotel in honor of the speaker of the evening, H. S. Noel, assistant director of Advertising of Eli Lilly & Co., the 196th meeting of the Chicago Branch was held at the University of Illinois School of Pharmacy.

Mr. Herbert Emig, of the University staff, gave a report on the last two issues of the JOURNAL, pointing out the important topics and giving a résumé of them.

He was followed by Mr. Noel, who talked on "Gone Are the Days." He said in part:

"Pharmacy has gone through a great change during the last two hundred years; for example, in the middle of the eighteenth century one would find in the shops, drugs which, because of the difference in price in buying small or large quantities had been bought in such quantity that they had grown old on the shelf and more harmful than beneficial.

"The first drug store was an outgrowth of the medical profession. The physician, when his practice had become too large for his detailed attention to all parts of it, hired an assistant to dispense for him. In 1752, the first real drug store was founded in Salem, Mass. Here among the various items could be found chamomile tea and red wax wafers and it was from this store that fishing vessels fitted their kits before putting to sea.

"While cinchona bark has been used for three hundred years, quinine was not isolated until 1820, twelve years before chloral came into use.

"As late as 1847 the loss of mothers in childbirth was very great. Puerperal sepsis and gangrene were very common. At the University of Vienna it was noticed that the patients cared for by 'internes' who had washed their hands in solutions of chlorinated lime

did not have the high death rate. This notes the birth of the use of antiseptics. At the time most people ridiculed the idea, but among those supporting it was Pasteur, who in 1885 gave rabies virus to the public. In 1885 Lord Lister did some very good work on antiseptics.

"In 1854 was founded Tobey and Snow's drug store, now the Powers Drug Co. of Syracuse, N. Y. This was the source of "Seneca Oil" (crude oil) which was skimmed from the waters by the Indians and used both internally and externally as a 'cure all.' This store had to make its purchases twice a year, in spring and fall, when the Erie Canal was open. The question then was, 'Can I put enough on my shelves to hold over until next buying time?' not, 'How much do I have invested?' At that time the salesmen were also the collectors.

"In 1890, diptheria antitoxin was prepared for the first time; in 1901, endocrine glands were being used; in 1921 insulin, the great benefit to the diabetic was produced by the University of Toronto. Cancer patients and those with *P. anæmia* were offered aids; in 1923 a Chinese student, Dr. Chen, at the University of Wisconsin discovered ephedrine from ephedra, the latter having been used some 5000 years (in decoction form) for asthma and other respiratory troubles.

"Not long ago one-fifth of the hospital patients died. Phenol and bichloride of mercury were the only antiseptics known.

" 'Tradition is the enemy of progress.' We must take the best from the old and add the new ideas to it. If we do not, we shall find ourselves in a rut.

"How can the pharmacist best serve the public? An ethical pharmacy is a very good thing, but the same ethical pharmacist must know how to make a living. Unless he does know that, his ethics will not help him much. A fine laboratory without any business sense as to how it should be run will not help a pharmacist to make a living. The druggist who makes money is in a better position to serve the public and himself. Why be ashamed of the prescription stock? Keep it as 'low' as possible. Watch the inventory and do not keep money invested in a great quantity of dead prescription material. Watch the overhead, remembering that there is 40–50% in the prescription department, which should be a great deal higher figure than that of the balance of the store. Keep the prescription inventory separate from that of the front of the store. 'Keep your shop and your shop will keep you.'

"The time is coming when we shall see the professional type of store in every city of 25,000 or greater population. Not all stores can become this type. In fact, most pharmacists do not even care to operate this type of business, even though they have the opportunity.

"Personality, integrity, intelligence and initiative are necessary to the successful pharmacist. Watch the advertising copy. At the present time there is a different order of intelligence to deal with than that of former years.

"Many druggists complain about the high cost of distribution, and wish to do away with the middle-man or service-wholesaler. This is all a mistake. You get what you pay for, and with the middle-man you are able to get service and credit—both necessities. True, you may have to accept smaller profits, but you will get them more often, which will even up things."

In answer to a request about the Druggists' Research Bureau, Mr. Noel said:

"The Druggists' Research Bureau, now located at 168 N. Michigan Ave., Chicago, is made up of representatives of teaching organizations, manufacturers, retailers and wholesalers. It has functioned for two years and is organized to solve the problems of any of its members. A slight fee is attached, but new problems in connection with the conduct of the drug business are being studied all the time. This is one of the greatest helps to drugdom in general, and may be had for two dollars a year."

Following the address, several discussed the changes between the old type store and the present one.

A rising vote of thanks was given Mr. Noel, and one of the most interesting meetings held this year was adjourned.

LEWIS E. MARTIN, *Secretary.*

DETROIT.

The March meeting of the Detroit Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held in the Y. M. C. A. Building, Tuesday evening, March 10, 1930.

Following a 6:30 dinner the meeting was called to order by Vice-President James Liddell at 8:00 P.M.

One of the largest gatherings of the year turned out for the annual "Student Night" program—the attendance numbering close to

a hundred. Mr. Liddell introduced E. A. Hamlin of the L. & N. Railroad, who offered his services to the Detroit Branch in encouraging a large number from Michigan to attend the A. PH. A. Convention, which is to be held in Miami, Florida, this summer. The L. & N. Railroad offered the ASSOCIATION a special rate of $61.07 for round trip, with Pullman $15.75 extra, each way.

Dean R. T. Lakey, chairman of the Program Committee, announced the speaker for the April meeting would be Prof. Preston H. Scott, director of Public Speaking at the College of the City of Detroit. His subject to be "Physiology of Human Behavior."

The May meeting is to be held in Ann Arbor. Dean Edward H. Kraus, of the College of Pharmacy of the University of Michigan, announced the speaker will be Dr. Nathan Sianai, professor of Public Health and Hygiene at the University of Michigan. He will speak on "The Cost of Medical Attention." Dinner will be served at 6:15 P.M. at the Women's League Building on the Campus.

Dr. Leonard A. Seltzer reported for Chairman Joseph J. Burniac, of the Membership Committee, by turning in applications and check for four new members.

Being "Student Night" the program was supplied by the students of the College of Pharmacy of the Detroit Institute of Technology, University of Michigan and College of the City of Detroit.

The first speakers were George Ginyell and Delbert Dabney of the Detroit Institute of Technology. They presented a most interesting paper on "Ephedrine and Ma Huang."

These papers were highly commendable. They brought out many interesting facts concerning this popular medicament going back to the year 1596 when it first appeared in the Chinese Dispensary. They presented samples of the many forms of ephedrine obtainable today which clearly showed the rapid advancement present-day pharmacy is making.

J. H. Webster commenting on the splendid paper made known the action of Eli Lilly & Co., who recently dedicated to the public the five patents they hold for the methods of incorporating ephedrine in oil. Heretofore Mr. Webster said it was in violation of the patents of Eli Lilly & Co. that a pharmacist took upon himself the compounding of a prescription which required the incorporation of ephedrine in oil.

Wilbur L. Scoville added a bit of useful and timely information regarding the dissolving of ephedrine alkaloid which is quite difficult. He said this can be easily overcome by the use of oil of cinnamon.

The next speaker was Oliver Weiniauff of the University of Michigan, who also presented a paper that required much preparation and research. The title of his paper was "Synthetic Laxatives."

Mr. Weiniauff brought out many interesting facts regarding the action of laxatives. The use of synthetic laxatives he said is rapidly gaining in favor and many new products are being developed by the various pharmaceutical research laboratories.

Howard Baker of the College of the City of Detroit presented "The Student Viewpoint on Professional Pharmacy." He said the attitude of the average pharmacist was most discouraging. He, like most of the students present, suggested raising the standards of pharmacy to meet the standards of the physicians. He suggested various ways to strengthen the profession and serve the physician and his community better, one of which was the installation of a simple laboratory where the physician could depend on the pharmacist for various analyses which, now, he is forced to do himself or depend on a technician or some commercial institution to perform.

Ruth Whyard, of the College of the City of Detroit, presented a technical paper, entitled "Potassium Sulphocyanate for Hypertension." Miss Whyard, pinch hitting for Ruth Tencza, completely covered the "Action, Uses and Preparation of Potassium Sulphocyanate." The paper was a most interesting one and worthy of special mention.

The last speaker was S. M. Schwartz, of the College of the City of Detroit. His paper was entitled "Comparison of the Choice of Electives as Chosen by Pharmacy Students." To appreciate the attitude of the pharmacy students and their demand for a higher standard in pharmacy it is only necessary to read the paper presented by Mr. Schwartz and the other student speakers. Mr. Schwartz's paper presented a clear view of the student bodies' fondest topics.

The students numbering sixty or more pleaded that steps be taken to bring about a better condition in pharmacy which can only be accomplished by raising the standards of the profession.

They went on record by asking that the Detroit Branch, A. PH. A., endorse the Michigan Plan sponsored by the Detroit Retail Drug-

gists' Association, to which Dr. Leonard A. Seltzer has contributed a good deal of thought, time and energy.

On motion of J. H. Webster, seconded by Mr. Leo J. LaCroix, it was ordered that a suitable resolution be drawn up and sent to the members of the M. S. P. A. legislative committee urging that they take steps to raise the standards of pharmacy by acting favorably on the proposed Michigan Plan. The motion was enthusiastically received by the student body and carried without a dissenting vote.

Student Night again proved to the members of the Detroit Branch that the trust placed in the hands of the student body was not misplaced, likewise the students again showed their appreciation with one of the most interesting programs ever presented before the Detroit Branch.

BERNARD A. BIALK, *Secretary.*

NEW YORK.

The March meeting of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION, which had been featured as "New York State Pharmaceutical Association Night," was held at the College of Pharmacy, Columbia University, on Monday the 9th, the chair being taken by the vice-president, Dr. Ernest A. Bilhuber. About 65 members were present.

The chairman called upon the secretary to read a message of welcome to the president and members of the State Association from the Branch president, Dr. Robert P. Fischelis, who was unable to be present, owing to his attendance at the annual meeting of the National Association of Boards of Pharmacy and the faculties of Colleges of Pharmacy of District No. 2, which was being held at Wilmington.

The minutes of the February meeting were read and approved.

Chairman Robert S. Lehman, of the Committee on Education and Legislation, spoke of the progress of the State bills upon which he had reported at the last meeting. He stated that a delegation of members of the State Association was going to Albany for a hearing on various bills relating to pharmacy. He read a letter from Chairman Curt P. Wimmer of the Committee on Legislation of the State Association, appealing to the Branch for a contribution to its fund to save the pharmacy ownership bill for pharmacy and to oppose all laws detrimental to pharmacy. A motion was made and carried to contribute $50.00 to the fund.

The secretary submitted the following applications for full membership in the Branch from Messrs. Vernon H. Brooks, Solomon Fierer, F. W. Heine, Pincus Herz and Matthew W. Miller. These were approved. The application of Mr. Morris Brodkin for membership in the parent organization was reported.

The secretary drew the attention of the members to the folders on a post convention trip to Havana that had been sent to the Branch by Secretary Grommett of the A. PH. A. Convention Committee.

Under the heading of Unfinished Business, Dr. Schaefer briefly reported for his committee dealing with the question of the Branch entering the New York Pharmaceutical Conference.

Dr. George C. Diekman, as a member of the committee on the Progress of Pharmacy, gave a very interesting report on the following new remedies: Tebolan, Tinfera, Secretin, Psorimangan, Ephetonal-Merck, Cheplasol, Bromo-Pyrosom, Calmed, Canual Tablets, Uroselectan, Emetopon, Sedal and Hexakosanol. His report was much appreciated by the members.

Dr. Bilhuber welcomed President Nicholas S. Gesoalde to the platform and turned over the meeting to him. The State president thanked the Branch for inviting his Association and said that he felt that this meeting was setting a good precedent for other local associations. He said "The New York State Pharmaceutical Association has been in existence since 1879, just 52 years, and in that time has been the watch-dog of Pharmacy in this state from every conceivable angle. It meets in convention only once a year, where reports of all its committees are submitted for action. These reports which contain professional and commercial pharmaceutical findings throughout the Nation and especially throughout New York State, likewise contain recommendations to remedy conditions that are detrimental to Public Health, the pharmacist and the pharmacy, and if heeded by its members they would make pharmaceutical and business life more profitable, respected successful and enjoyable.

"Besides the annual meeting, there are two meetings held during the year, one in October at Albany and one in February in New York City; all the officers, chairmen of all committees, the entire executive and legislative committees meet, and to these meetings are

invited the presidents of all local associations throughout the state. At these meetings reports are rendered as to the plans and progress made by the several committees. Emergency matters are attended to which may have occurred since the annual meeting. At these meetings the legislative matters that were referred to that committee are whipped into shape, and ways and means are adopted to further legislation favorable to public health and pharmacy, and to combat legislation harmful to pharmacy.

"I do not want to take up the whole evening in telling you the vast importance of the New York State Pharmaceutical Association, or why it is becoming more imperative every day that every pharmacist or druggist, whether a proprietor or clerk, should be a member of his State association; suffice it to say that you or I do not know of a profession or industry that is successful without a good strong State association.

"In passing, I want to say a few words regarding Committee Reports. You probably know that committee reports when presented usually are read by the chairman and then received and voted to be placed in the Proceedings, but let me tell you that all legislative business reforms and methods applied for better professional and commercial pharmacy that have been adopted in the past ten years were recommendations submitted by chairmen of committees ten years before."

President Gesoalde then gave the report of the Legislative Committee in the absence of Chairman Wimmer.

Chairman Schaefer, of the Committee on Pharmacy and Queries, outlined his plan for the presentation of original papers to be read at the annual convention.

Chairman Arny, of the Committee on New Remedies, who was attending the Wilmington meeting, sent in his report which was read by the president. His report showed, among other things, that the *Proceedings* of the New York State Pharmaceutical Association and the YEAR BOOK of the A. PH. A. contain the only two permanent records of new remedies available to the American pharmacist.

Chairman Lehman, of the Committee on Transportation, reported briefly on the work of his committee.

President Gesoalde read a letter from Chairman Robert P. Lampa, of the Committee on Drug Markets, who was convalescing after a recent operation; also a letter from Prof. Leon M. Monell of Buffalo, chairman of the Committee on Commercial Interests, referring to a questionnaire which is to be sent out by his committee; the latter was also read by the president.

Chairman Morris Brodkin, of the Membership Committee, reported that the Association had obtained 54 new members for this year; he stated that the Bronx County Pharmaceutical Association, of which he was president, was including membership of the State Association in its annual dues.

Mr. Jaffee, of the Committee on Conventions, reported plans for the coming convention at Richfield Springs.

Chairman M. S. Malakoff, of the Committee on Information, reported among other things, that his committee had been instrumental in getting the N. Y. Telephone Company to change in their Classified Directory the listing of "Druggists" and "Drug Stores" to "Pharmacists" and "Pharmacies."

Discussions on the various reports took place during the evening, interest centering chiefly on legislative matters. Messrs. Gerstner, Schaefer, Lehman, Brodkin, Bilhuber and Seely were among those who took part.

President Gesoalde said that his evening's discussion would help the delegation going to Albany to the hearings at the State Capitol next morning. He wished for a large attendance at the Convention in June and said that the delegates hoped Governor Roosevelt would be able to visit them there.

Dr. Bilhuber thanked President Gesoalde for the interesting program he had carried out and, after a rising vote of thanks, the meeting adjourned.

HERBERT C. KASSNER, *Secretary.*

NORTHERN OHIO.

The first regular meeting, 1931, of the Northern Ohio Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held in the School of Pharmacy of Western Reserve University, February 13, 1931.

Following the regular monthly dinner meeting of Council the members met in the lecture room to hear Dr. A. B. Denison, Assistant Director of the Student Health Service of Western Reserve University. The subject of Dr. Denison's talk was "The Professional Society."—(See first article of this Department.)

The following officers were elected for the year 1931: *President,* Edward Spease; *Vice-*

President, A. B. Ejbl; *Secretary*, F. J. Bacon; *Treasurer*, Herbert Decker.

The members of Council for the year are as follows (1931): A. B. Ejbl, H. E. Benfield, Edward Davy, L. P. Miller; (1932) Edward Spease, Paul Hudson, A. L. Flandermeyer, George Miller; (1933) Herbert Decker, Emil Petersilge, Joseph Matousek, Andrew Walleck; (1934) F. J. Bacon, N. T. Chamberlin, A. P. Gegenheimer, Alex Steiner.

After a discussion of Dr. Denison's paper the Society adjourned.

F. J. BACON, *Secretary*.

PHILADELPHIA.

The annual meeting of the Philadelphia Branch, AMERICAN PHARMACEUTICAL ASSOCIATION was held at the Philadelphia College of Pharmacy and Science, Tuesday evening, March 10, 1931 and called to order by President Dunn at 8:00 P.M.

Reading of the minutes of the February meeting was waived, since the minutes had already been published.

The Treasurer's report was submitted with a certificate of audit as rendered by Prof. F. P. Stroup. The report showed a balance of $190.73 in the checking account and $462.43 in the special savings fund account. A motion to accept this report was made and passed.

The following applications for membership in the AMERICAN PHARMACEUTICAL ASSOCIATION were next submitted: Alfred Barol, J. Hampton Hoch, Attilio Miceli, Meyer Stein, F. Robert Schrey, Samuel Wohlgemuth and William J. Stoneback. A motion to accept them as Branch Members, subject to approval by the A. PH. A. was offered and passed. The names of A. L. Barthen and James C. Munch were offered as transfer members from other branches. A motion for acceptance was made and passed.

Regrets of inability to attend the March meeting and dinner from Dr. Wilmer Krusen, Samuel Henry, Wm. H. Jenkins, F. E. Stewart, Henry Blair, Brua Goodhart, J. W. England, Quintus Hoch and W. L. Cliffe were read.

A resolution was passed authorizing the Mortgage Security Trust Company as custodian of the special savings account of the Philadelphia Branch, A. PH. A. until such time as the affairs of the Branch may make a change necessary.

The guest of honor, Dr. John C. Krantz, Jr., chief of the Bureau of Chemistry of the Maryland State Department of Health, was introduced by President Dunn. Dr. Krantz chose for his subject "Measurements," and very capably ran the gamut of demonstrating practically the measuring distances from the Star Vega and the Magellan Cloud down to an actual determination of the weight of an electron. In demonstrating distance measurement, he took as a unit the distance a ray of light travels per second. This he translated into centimeters and "light" years. In these terms it is possible to estimate distances otherwise unfathomable. As an example, he cited a person on the Star Vega armed with a telescope with which he could view the earth, would have to wait two years more before the light conveyed to him the scenes of the Spanish-American War, or a total of thirty-five light years.

Following Dr. Krantz's very interesting discussion, expressions of gratitude as well as some very interesting definitions were delivered by Messrs. McNeary, Harrisson, Munch, Nichols, Viehoever and LaWall. Mr. Hunsberger suggested a rising vote of thanks as a partial expression of appreciation, to which everyone present responded.

President Dunn expressed his appreciation for the honor accorded him and the coöperation given him by the Branch members during his term of office.

The Committee on Nominations were called on for their report. The Committee consisted of Chairman Nichols, Messrs. Harrisson and Hunsberger. Chairman Nichols read the report as follows:

For *President*, James C. Munch
First Vice-President, John Roberts
Second Vice-President, John Woodside
Secretary-Treasurer, William J. Stoneback
Delegate to A. Ph. A., Ambrose Hunsberger

The report was accepted and as there were no further nominations the president requested the secretary to cast a unanimous ballot for the nominees. The secretary cast the ballot and declared the nominees elected.

The newly elected officers present were presented and President-Elect Munch was escorted to the Chair by Mr. Harrisson. President Munch expressed his appreciation and promised interesting programs during the coming year.

Preceding the meeting, the members assembled in the Auditorium of the College for the annual dinner known as the Past-Presidents' Dinner. Twenty members and guests were present. This attendance increased to fifty when the meeting started.

WILLIAM J. STONEBACK, *Secretary*.

PITTSBURGH.

A joint meeting of the Pittsburgh Branch and the Pittsburgh College of Pharmacy Students' Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held Thursday evening, March 19, 1931, at Webster Hall.

Dinner was served in the Georgian Room to members and friends.

President Stephen Wilson opened the meeting. He acquainted the group with the fact that since the meeting was being held during "First Aid Week," the program for the evening would be pertinent to that subject.

The president then turned the meeting over to Dr. E. C. Reif of the Pittsburgh College of Pharmacy.

Dr. Reif in his opening remarks indicated that an extensive program had been arranged and presented the speakers in the following order:

PROGRAM.

FIFTH ANNIVERSARY DINNER OF THE PITTSBURGH BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

FIRST AID—BE PREPARED.

"The Pharmacist and First Aid," Dr. F. B. Norton, medical director Philadelphia Company.

"First Aid Talk," by Chas. I. Renz, Instructor, Duquesne Light Company and Equitable Gas Company.

"First Aid Demonstration of Arterial Bleeding, Fracture and Lacerations" by Men's Team from Duquesne Light Company's Colfax Power Station: Captain, J. A. Baker; C. L. Fulmer, Wm. Eagler, R. R. Waldo, Wm. Lentz, A. S. Bathery.

Problem: The following injuries were sustained by a workman who slipped from a scaffold and fell to the ground: Laceration on the top of the head, small cut on the right forearm with arterial bleeding, simple fracture of left leg, but two inches long on the calf of the right leg. Team to demonstrate the proper first aid treatment and transport twenty feet.

First Aid Demonstration of Artificial respiration, arterial bleeding and burns, by Girl's Team from Duquesne Light Company's Substations and Shops and Stores' Departments.

Captain, Margaret Hitchman; Clair Hamill, Catherine McCaque, Gertrude McMullen, Beatrice Riley.

Problem: A girl is overcome by fumes while ironing clothes in a small room in which burned an unventilated gas stove; she is apparently not breathing and in falling dragged the hot iron from the ironing board, causing a severe burn on the calf of the left leg. She also sustained a deep cut on the right wrist which is bleeding in spurts. Three girls give artificial respiration for one minute each. Treat injuries and place on stretcher.

Discussions on First Aid by members of the Class of '31 of the Pittsburgh College of Pharmacy.

"First Aid," Melvin W. Green.
"Unconsciousness," Dale W. Brothers.
"Fainting," Wilbur Anderson.
"Epilepsy," Gershen Liepack.
"Shock," Melvin W. Green.
"Asphyxia," James A. Dunn.
"Hemorrhage," Chester Buckley.
"Apoplexy," Herman Marini.

FRANK S. MCGINNIS, *Secretary.*

WESTERN NEW YORK.

The meeting of the Western New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held January 15, 1931, at Foster Hall, on the University of Buffalo campus. The minutes of the previous meeting were read and approved.

The following new members were introduced: P. J. Muzalewski, J. Hungerford Smith, Erwin L. Fish.

President Freeman then introduced Mr. John J. Nichols, director of the Iodine Educational Bureau, in New York City, who spoke in part as follows on

PROFESSIONAL PHARMACY CAN AND WILL SUCCEED.

"Pharmacy is back—the majority sales in drug stores to-day are of drugs.

"The report of a survey made possible by a subvention granted by the Commonwealth Fund through its committee on administrative units and the coöperation of the American Association of Colleges of Pharmacy, National Association of Boards of Pharmacy and the National Association of Retail Druggists, states:

"'Pharmacy is an ancient and honorable profession. Its beginnings are lost in the mists of antiquity and its history is replete with substantial accomplishments. Phar-

macy is the mother of medicine and the original source of many forms of research. Numerous investigators who have made epochal contribution to science and art have been enrolled among its followers. To-day, pharmacal research is scholarly and productive.'

"There are however, as you well know, two or perhaps three different types of pharmacies to-day. One is ultra-ethical, the owner takes pride in the selling of pharmaceutical products and prescription filling. Indeed the tendency towards colonization of medical men in various office buildings has created a demand for such stores which are usually found in these buldings above street level and which the owners operate for professional services.

"Then there is also the store which depends to a large extent upon the neighborhood clientele for prescription filling and home remedies. These stores have installed soda fountains for the dispensing of carbonated drinks only; they also sell confection and cigars. This type of store is one which, to our recollection, can be described as a neighborhood drug store, or at least a neighborhood drug store as we would like to have it.

"In the early part of this century, chain stores entered the drug field, having been financed and for the main part operated by men outside the profession of pharmacy. They added to their line merchandise which, while not being directly pharmaceutical, could by the broadest stretch of imagination be included as pharmacy products. For instance, we find umbrellas in the chain drug stores and I think we can truthfully say that umbrellas can be taken to be a cold preventive, especially in the kind of weather we are now having. Coffee is also found in these stores and this product, since it contains caffeine, will relieve headache and it is a mighty good stimulant to have at this time of the year. There are numerous other items we might add which have absolutely no connection with pharmacy. Some of the legislatures have been asked to take action against this type of store, as it is contended by tradesmen in other lines that such stores are nothing more nor less than department stores and have a decided advantage over department stores inasmuch as they can remain open on Sundays. It might be added that a large percentage of the business of these stores is done during hours when other stores carrying the same class of merchandise are closed. Of course, as would be expected, manufacturers used every sales effort to encourage retail druggists to add these outside lines to their stocks and as a consequence we find independent stores competing with chain stores. This type of store naturally went in for the luncheonette when it made its appearance in a big way and, as a result, the pharmacy end of these establishments became a secondary issue. Personally, I think that placing pharmacy in a secondary position is flattering pharmacy. My observations have led me to believe that the pharmacy end is there simply to give the dealer an opportunity to remain open at night and on Sundays."

Mr. Nichols continued his remarks by reference to articles handled in various drug stores and dealt with the subject of "larger manufacturing in retail pharmacies of U. S. P. and N. F. preparations," which in his opinion afforded a means of profit and also of maintaining the dignity of the pharmacy. He emphasized the need of highest quality of goods not only of medicines but also containers, packages, etc. He made reference to a number of preparations which could be advantageously sold in the drug store instead of articles manufactured elsewhere. He welcomed the return of the show globe and in his opinion the stock of the pharmacist should exemplify in every way his ability to practice the profession. He also advised coöperation with physicians in every possible way and emphasized that pharmacists should evidence a high regard for their profession.

LAWRENCE D. LOCKIE, *Secretary.*

FEBRUARY.

The February meeting of the Western New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held Thursday, Feburary 5, 1931, at the Alumni Club, Buffalo, N. Y. The minutes of the previous meeting read and approved.

The following new members were introduced: Dr. Richard F. Morgan; J. A. Handy; P. M. Lockie; George F. Bigham.

Mr. Fiero reported for the Entertainment Committee and announced that Mr. Monell was making preparations for a demonstration of show-card writing for the March meeting.

Mr. Freeman announced the appointment of the Committee on Nominations, as follows: *Chairman*, Dr. W. G. Gregory, J. A. Handy, Robert Davison.

Dr. W. G. Gregory spoke on "The Sponge Industry in Florida." He said in part:

"Fifty years ago the sponge industry was confined to the Mediterranean Sea, where it was carried on mostly by the Greeks. They fished from small, glass-bottomed boats, with long hooks. In 1853 sponges were discovered in the Gulf of Mexico near Key West. A colony of sponge fishers was established, boats and men being imported for the purpose.

"A half million dollar business was built up on the old methods, and then sponges were discovered in the northern waters near Tampa and the seat of the industry moved north. Divers were added to increase the depth of operation, the size of the boats was also increased, and now trips of three or four months' duration are made.

"Headquarters of the industry are at Tarpon Springs, where the largest sponge exchange in the world is now located. It covers about two acres in the form of a hollow square, three sides of which are occupied by the spaces, or cells, in which the sponges are kept. Sales are held about twice a week. The rental charged for a space in the exchange is one-half per cent. Most of the sponges are 'sheepswool' as that is the most desired kind."

Mr. Yeandel, of Bauer and Black, was the second speaker, and told of the manufacture of "First Aid Supplies."

"The cotton used in making surgical absorbent cotton is grown mostly in the United States. The company buys from the gin, in bales. As obtained it is not absorbent, being full of oil. The oil is removed with soap and caustic.

"The cotton is then pulled apart, bleached, and dried in an oven, after which it is absorbent, but tangled. It is then carded, and comes from the carding machine in a sheet about one fiber in thickness. These layers are piled up until a sheet about one inch thick is obtained. This is then cut, rolled, boxed and sterilized.

"'Zinc Oxide Adhesive' is composed of zinc oxide, rosin, rubber and cloth. The rubber used is a mixture of the Indian and South American product. The rubber mass is thoroughly mixed with the zinc oxide and the rosin between rollers, and gauze is then covered with the mixture."

Mr. Yeandel also described the process of making catgut ligatures, and those made from Japanese silk, which are more uniform in size, and have no capillary opening.

LAWRENCE D. LOCKIE, *Secretary.*

BUREAU OF BUSINESS AND SOCIAL RESEARCH UNIVERSITY OF BUFFALO.

With the coöperation of druggists of Buffalo a comparison of the monthly total sales of thirty-three Buffalo drug stores for January and February 1931, is presented. For every $100 of sales in January 1931, the drug stores of the city sold $105.86 in February, after proper allowance for the number of days in the month. This is believed to be the first attempt in the United States to furnish current sales figures for retail drug stores. The stores have been selected, according to character and location, so as to provide a representative example of the drug store business of this city.

The actual total sales of these 33 stores (including 19 "independent" stores and 14 "chain" stores) were $162,595 in January and $155,475 in February. Since February contains only 28 days, the January total is reduced to a 28-day basis for comparison, and the totals are as given in the table below, showing a gain in February sales of 5.9 per cent over the preceding month.

The above figures are useful as an indication of tendencies in retail sales generally, but are not exactly representative of the Buffalo drug store business, because they are too heavily weighted with chain stores. If the results of the "Eleven City Census" of 1928 be accepted, about 70 per cent of retail drug store sales are by independents and 30 per cent by chain stores. Applying these proportions to the sales of chain and independent stores for these two months in Buffalo, it is found that February sales show a gain over January of 7.28 per cent.

	January sales.	February sales.
Thirty-three stores (unadjusted)	$162,595	$155,475
Adjusted for days of month	146,860	155,475
Unweighted adjusted index	$100.00	$105.86
Weighted average of chain and independent stores	$100.00	$107.34

Prepared by Bureau of Business and Social Research in coöperation with Leon Monell, Associate Professor of Commercial Pharmacy, University of Buffalo.

PROPOSED STUDENT BRANCH, AMERICAN PHARMACEUTICAL ASSOCIATION, STATE COLLEGE OF WASHINGTON.

Through the efforts of Dean P. H. Dirstine and members of the faculty application has been made for the organization of a Student Branch, A. PH. A., in the State College of Washington. About thirty students have applied for membership and organization has been effected by the election of:

President, Harleigh Lines; *First Vice-President*, Marlowe Dittebrandt; *Second Vice-President*, Wallace Lindahl; *Secretary-Treasurer*, Belle Wenz.

PLANT-SCIENCE SEMINAR.

The time for the *Ninth Annual Meeting of the Plant-Science Seminar* has been set for the week preceding the AMERICAN PHARMACEUTICAL ASSOCIATION convention at Miami and will be held at Gainesville, Florida, July 20 to 24, 1931.

A part of the program has been arranged for; additional papers and discussions are requested. If you have a paper to present or a topic to suggest for round table discussion, please inform either the chairman or secretary at once. Dr. H. W. Youngken has just announced a paper on the Anatomy of Derris, and Professor Canis will present a résumé on pharmacognostic investigations and drug plant cultivations during the past year in European countries.

One session will be devoted to a discussion of (1) "Naval Stores Methods" and (2) "Uses of Naval Stores Products." These discussions will be led by experts in this field, namely: Lenthall Wyman, director Naval Stores Branch, U. S. Forestry Service, and C. F. Speh, secretary of American Pine Institute. Tools and implements used in this Industry will be on display. Major W. L. Floyd, dean of the College of Agriculture, Gainesville, assisted by Harold Mowry, associate horticulturist, will discuss Campus Plants and conduct a tour of the Campus; other interesting discussions are being arranged for.

Surveys will include a trip to a turpentine still, a pine-tar products plant, Florida Medicinal Plant Gardens and tung oil groves.

In order to give those members interested in the Conference of Pharmaceutical Research an opportunity to attend, we plan to leave Gainesville, Friday morning and, traveling by autos, the trip will be through the orange and grapefruit section of Florida to Fort Myers for an overnight stop. Fort Myers is the winter home of Edison and Ford. Leaving Saturday morning and traveling *via* the Tamiami trail across the Everglades, Miami can be reached in ample time for the Conference meeting.

Those who care to see tropical plants of South Florida will proceed to the region south of Miami, where the collections of H. W. Johnston and Dr. Peterson may be seen and Chapman Field (Branch station of U. S. Bureau of Plant Industry) and Royal Palm State Park can be visited.

For railroad rates see Dean Bradley's announcement in February issue of JOUR. A. PH. A. Hotel accommodations and rates will be given in next announcement.

Plans for entertainment of the ladies include luncheons, bridge and theatre parties; a trip to Silver Springs and a lawn supper will also be provided. Suggestions for the program will be appreciated.

O. P. M. CANIS, *Secretary-Treasurer.*
B. V. CHRISTENSEN, *Chairman.*

DRUG STORE SURVEY.

The Department of Commerce announced on March 24th that the survey of drug stores had begun. The single aim of the survey is to prevent such a detailed analysis of the retail drug business that the druggist will be able to identify the sources of profit and loss in his trade. General supervision of the survey is in charge of Howard C. Dunn, Chief of the Medicine Research Division of the Bureau of Foreign and Domestic Commerce, assisted by Frank A. Delgado of the Chemical Division of the Bureau in the charge of the professional phases of the survey. Nine trade specialists of the Bureau will take up various special features of the work.

CONGRESS OF MILITARY MEDICINE AND PHARMACY.

The Sixth International Congress of Military Medicine and Pharmacy will be held at the Hague from June 1st to June 6th. Reference was made in the December JOURNAL, page 1342. American pharmacists were not represented in the last Congress, will they be in this session?

ASSOCIATION BUSINESS

THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION 1930-1931.

Office of the Secretary, 10 West Chase Street, Baltimore, Md.

LETTER NO. 9.

March 30, 1931.

To the Members of the Council:

91. Election of Members. Motions Nos. 27 and 28 (see Council Letter No. 8, page 291) have been carried and applicants numbered 208 to 265, inclusive, and H-18 to H-21, inclusive, are declared elected.

92. National Pharmacy Week. Motion No. 29 (see Council Letter No. 8, page 294) has been carried and an appropriation of $250.00 has been added to the budget for 1931. Check for this amount has been forwarded to Chairman Ruth.

93. Year Book, Volume 18 (for 1929). Motion No. 30 (see Council Letter No. 8, page 294) has been carried and the contract for printing and mailing the Year Book, Volume 18, has been awarded to the Lord Baltimore Press.

94. State College of Washington Student Branch, A. Ph. A. There is submitted below an application signed by twenty-eight associate members for the formation of this Branch:

"We, the undersigned members of the Student Body of the School of Pharmacy at the State College of Washington, wish to organize ourselves into a local branch, to be known as the State College of Washington Student Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION, and do hereby make application to the council for recognition as such a body. The constitution and by-laws are submitted for approval.

Sophie Jans	Ralph Kirtley
Haakon Bang	Kenneth Vincent
Ruth Vincent	Margaret McCroskey
Elizabeth Lawson	Morris Ewell
Isabel Morris	Mabel Smithey
Elsie Anderson	Bessie Swift
Leonard Fisher	Lewis Emerson
Harriette Reimers	Max Marr
Marlowe Dittebrandt	Henry Tombari
Kenneth Thoreen	Paul Luft
Henrietta Rubin	Claude Messer
Chester Kalinowski	Harleigh Lines
Lois Vaughn	Wallace Lindahl
Richard Curtis	Harold Buth

Those interested in this Branch have held two meetings, one on March 12th and the other on March 16th, and have completed their organization by the election of the following officers:

President, Harleigh Lines
First Vice-President, Marlowe Dittebrandt
Second Vice-President, Wallace Lindahl
Secretary-Treasurer, Belle Wenz.

The minutes of these meetings will appear in the JOURNAL OF THE A. PH. A.

The Constitution and By-Laws, as submitted, are as follows:

PREAMBLE AND BY-LAWS OF THE STATE COLLEGE OF WASHINGTON BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

In order to stimulate a better acquaintance of Students and Faculty for the exchange of ideas and for the betterment of Pharmacy at the State College of Washington and in Eastern Washington, therefore, we, the undersigned Students and Faculty of the School of Pharmacy at the State College of Washington, do hereby resolve to constitute ourselves into a student branch of the AMERICAN PHARMACEUTICAL ASSOCIATION for the purpose of advancing the objects for which the body was founded.

The name of this body shall be "The State College of Washington Student Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION."

The Branch hereby adopts for its guidance the Constitution and By-Laws of the AMERICAN PHARMACEUTICAL ASSOCIATION, and its members hereby subscribe to them.

BY-LAWS.

1. **Members.**—This Branch shall consist of active and associate members.

2. **Active Members.**—All members of the AMERICAN PHARMACEUTICAL ASSOCIATION residing in Eastern Washington or Western Idaho, on signifying their intention of adhering strictly to the provisions enumerated in the preamble and in the Constitution of the AMERICAN PHARMACEUTICAL ASSOCIATION, be elected to active membership of this Branch.

3. Associate Members.—Any person who is not an active member, but who manifests his interests either by contribution or active participation of work or research, scientific papers, or adds to its financial resources shall be termed an associate member but without the right to vote.

4. Officers.—The officers of the Branch shall be a president, two vice-presidents, secretary and treasurer, and delegate to the house of delegates.

5. Committees.—At the March meeting of each fiscal year or as soon thereafter as possible, the president shall appoint four standing committees, as follows: A Committee on Student Activities, to consist of three members; a Committee on Program, to consist of three members; a Committee on Membership, to consist of five members.

6. Executive Committee.—The officers of the Branch and chairmen of the Standing Committees shall constitute the Executive Committee, to transact all the necessary business connected with the regular meetings of the branch.

7. Meetings.—The meetings of the Branch shall be held on the second and fourth Thursdays of each month from October to May, inclusive. Special meetings may be called at the discretion of the president.

8. Quorum.—Seven members shall constitute a quorum.

9. Fiscal Year.—The fiscal year of the Branch shall be from the stated meeting of March of one year to the meeting of March of the following year.

10. The office of secretary and treasurer shall be combined into one and shall be held by a member of the faculty of the School of Pharmacy.

11. Elections.—The officers shall be elected, by ballot, at the February meeting and be installed at the March meeting, and shall serve for one year or until their successors shall have been elected.

12. Presiding Officer.—In the absence of the president, the next succeeding officer shall take the chair.

13. Secretary.—The secretary shall keep a fair and correct minutes of the proceedings of the meetings and send reports of the same to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION and such journals and newspapers as he may deem proper. He shall preserve, on file, all reports and papers of every description presented to the Branch, and shall be charged with the necessary business and scientific correspondence. He shall read all papers handed to him by the president for the purpose, shall call and record ayes and nays whenever they are required to be called; shall notify the chairmen of every standing and special committee of his appointment, giving him a list of his colleagues and stating the business upon which the committee is to act. He shall notify every member at least one week in advance of the time and place of each meeting.

14. Treasurer.—The treasurer shall collect and take charge of the funds of the Branch and shall give receipts for the same. He shall pay no money except upon order of the secretary, countersigned by the president and accompanied by the proper vouchers. He shall present a statement of conditions at each March meeting of the Branch. He shall receive the amount of his expenses incident to the duties of his office.

15. Order of Business.—(1) Reading of the minutes of the previous stated meeting; (2) Introduction of newly elected members; (3) Unfinished or deferred business; (4) New business; (5) Program; (6) Nominations and elections; (7) Adjournment.

16. Miscellaneous.—Every proposition to alter and amend these by-laws shall be submitted in writing at a stated meeting of the Branch, and may be balloted for any subsequent stated meeting, when, upon receiving the votes of three-fourths of the members present, it shall become a part of the by-laws.

17. Rules of Order.—On all points not specifically mentioned in the by-laws governing this section, the By-Laws of the AMERICAN PHARMACEUTICAL ASSOCIATION shall take precedence over the other decisions on parliamentary rule.

(*Motion No. 31*) *It is moved by Kelly that the application for the formation of the State College of Washington Student Branch, A. Ph. A. and the constitution and by-laws of the Branch be approved.* If any member wishes to discuss this motion, the vote will be considered as tentative.

95. Life Membership. Mr. L. E. Bote, Portsmouth, N. H., has become a Life Member of the ASSOCIATION through the payment of $50.00.

96. Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received.

No. 266, Elsie Anderson, College Station, Pullman, Wash.; No. 267, Haakon Bank, 1714 Monroe St., Pullman, Wash.; No. 268, Esther Barney, 4344 Ellis Ave., Chicago, Ill.; No. 269, E. L. Beezley, 2301 B. Ave., N.E., Cedar Rapids, Ia.; No. 270, J. D. Booth, 252A Calhoun St., Charleston, S. C.; No. 271, Morris Brodkin, 2172 Westchester Ave., New York, N. Y.; No. 272, Swan Brookshire, 217 N. Penn. St., Indianapolis, Ind.; No. 273, Albert Bunin, 1713 W. Fourth St., Wilmington, Del.; No. 274, Harold F. Buth, 505 Colorado St., Pullman, Wash.; No. 275, Ward S. Clarke, Benson, Minn.; No. 276, Richard M. Curtis, Valk Apts., Pullman, Wash.; No. 277, Frank A. Delgado, 1631 Euclid St., N.W., Washington, D. C.; No. 278, Marlowe Dittebrandt, Stevens Hall, Box 421, College Station, Pullman, Wash.; No. 279, Leroy Drechsler, Superior & Mayfield Road, Cleveland, Ohio; No. 280, R. S. Dudley, 2600 W. Division St., Chicago, Ill.; No. 281, Earl E. Durham, 301 N. Shiawassee St., Corunna, Mich.; No. 282, Lewis J. Emerson, 1719 C Street, Pullman, Wash.; No. 283, Morris E. Ewell, 1605 F St., Pullman, Wash.; No. 284, Leonard N. Fisher, 900 Thatuna St., Pullman, Wash.; No. 285, Thos. C. Fletcher, N. Main St., Williston, Fla.; No. 286, J. W. Gardner, 704 Main St., Vancouver, Wash.; No. 287, Fred W. Gehrung, 3427 Lee Road, Cleveland, Ohio; No. 288, W. W. Hosler, 1461 East 108th St., Cleveland, Ohio; No. 289, A. L. Jackson, 204 N. Brown St., Orlando, Fla; No. 290, Sophie Kathleen Jans, Box 566, College Sta., Pullman, Wash.; No. 291, D. C. Jewell, 545 N. Orange St., Orlando, Fla.; No. 292, Richard S. Johnson, 433 N. Garden St., Gainesville, Fla.; No. 293, Chester G. Kalinowski, 1310 Maiden Lane, Pullman, Wash.; No. 294, Thomas C. Kennedy, 494 South Park, Buffalo, N. Y.; No. 295, Ralph Kirtley, Lake Street, Pullman, Wash.; No. 296, Elizabeth Lawsen, 457 College Station, Pullman, Wash.; No. 297, Ben R. Leigh, P. O. Box 521, Orlando, Fla.; No. 298, Wallace W. Lindahl, 505 Colorado St., Pullman, Wash., No. 299, Harleigh Ralph Lines, 202 Whitman St., Pullman, Wash.; No. 300, Paul H. Luft, College Station 126, Pullman, Wash.; No. 301, Margaret McCraskey, Box 184 College Sta., Pullman, Wash.; No. 302, J. Merle McElroy, 125 S. Orange St., Orlando, Fla.; No. 303, Max B. Marr, 503½ Maiden Lane, Pullman, Wash.; No. 304, Claude W. Messer, Grand St., Pullman, Wash.; No. 305, Isabel Morris, 304 Ash St., Pullman, Wash.; No. 306, H. A. Oehrli, Avenue d' Ouchy 62, Lausanne, Switzerland; No. 307, C. O. Powers, 28 N. Hyer St., Orlando, Fla.; No. 308, Harriette Reimers, New Dorm., Pullman, Washington; No. 309, Henrietta Rubin, 1707 C. St., Pullman, Wash.; No. 310, Oscar E. Russell, 531 So. Main St., Elkhart, Ind.; No. 311, Frederick Robert Schrey, 43rd St. and Kingsessing Ave., Philadelphia, Pa.; No. 312, Mabel M. Smithey, 502 Campus Ave., Pullman, Wash.; No. 313, R. C. Stokes, Medical College, Charleston, S. C.; No. 314, William J. Stoneback, 43rd St. and Kingsessing Ave., Philadelphia, Pa.; No. 315, Bessie B. Swift, 802 Linden Ave., Pullman, Wash.; No. 316, L. S. Teitelbaum, 536 Lake Shore Drive, Chicago, Ill.; No. 317, Kenneth V. Thoreen, Stimson Hall, Pullman, Wash.; No. 318, Henry Tombari, P. O. Box 396 College Station, Pullman, Wash.; No. 319, Ernest Charles Turner, Allison Hotel, Cedar Rapids, Iowa; No. 320, Oren G. Turner, 2709 Jettan Ave., Tampa, Fla.; No. 321, Lois L. Vaughn, Senior Hall Box 522 College Station, Pullman, Wash.; No. 322, Hugh C. Vincent, 638 College Station, Pullman, Wash.; No. 323, Kenneth Vincent, Stimson Hall, Pullman, Wash.; No. 324, Fred B. Walsh, 397 N. Orange Ave., Orlando, Fla.; No. 325, Samuel Wohlgemuth, 5348 Haverford Ave., Philadelphia, Pa.; No. 326, John C. Zeigler, 2646 Reel St., Harrisburg, Pa.

(*Motion No. 32*) *Vote on applications for active membership in the American Pharmaceutical Association.*

97. Applicants for Membership on Account of Contributions to the Headquarters Building Fund. The following non-members of the A. PH. A. have pledged $25.00 or more to the Headquarters Building Fund and have made a cash payment of $5.00 or more. They are entitled to membership and you are requested to vote on the applications which have been properly endorsed.

H-22, Jacob M. Block, 121 Newton St., Newark, N. J.; H-23, Santo Cottone, 1214 8th Ave., Brooklyn, N. Y.; H-24, Marietta Brunelle, 33 East Merrimack St., Lowell, Mass.; H-25, John E. Hefferman, Jr., 13 Pleasant St., Salem, Mass.; H-26, James Warner Scofield, 301 E. Main St., Shelbyville, Ky.

(*Motion No. 33*) *Vote on applications of contributors to the Headquarters Building Fund for membership in the American Pharmaceutical Association.*

98. Investment of Funds. In 1929, the Council approved a list of bonds for purchase as available (see Council Letter No. 2, 1929–1930, page 14; page 1210 JOURNAL A. PH. A., 1929). Bonds of each offer have been purchased with the exception of those of the State of Missouri of which none have been available when wanted. The treasurer recommends that in order to spread our investments the Council approve the purchase of such bonds of the group listed below as meet the requirements of Article IV of the Constitution of the ASSOCIATION and are rated as AAA:

State and Municipal Bonds of New York
State and Municipal Bonds of New Jersey
State and Municipal Bonds of Michigan
State and Municipal Bonds of Pennsylvania
State and Municipal Bonds of Maryland
State and Municipal Bonds of Massachusetts

This recommendation has the approval of the Chairman of the Committee on Property and Funds.

(*Motion No. 34*) *It is moved by Holton that the treasurer be authorized to purchase, as funds are available, such bonds of the group listed above as meet the requirements of Article IV of the Constitution and are rated as AAA.*

E. F. KELLY, *Secretary.*

THE NEW YORK CITY CANCER COMMITTEE.

The New York City Cancer Committee is coöperating with the American Society for the Control of Cancer in an effort to control the disease and to call attention of the public to the dangers of spreading cancer and, perhaps, in an early stage a cure may be effected by surgical means. By giving heed to unusual symptoms of irregular functions in the body a beginning cancer can, in many cases, be discovered.

FOURTH INTERNATIONAL CONGRESS ON MEDICINAL PLANTS AND OIL-YIELDING PLANTS.

The Fourth International Congress on Medicinal Plants and those yielding odoriferous substances, will be held in Paris, July 16th to 21st, under the auspices of the Department of Agriculture and of Commerce, of France.

The Executive Committee of the Federation is composed of Professor Augusztin, Budapest; Dr. Carl Boshart, Munich; Prof. W. V. de Graaff, Utrecht; Prof. Dr. Allesandro De Mori, Rome; Prof. Emil Perrot, Paris; Prof. R. Wasicky, Vienna; the Secretary General is Dr. W. Himmelbauer, Vienna.

Delegates from France, Italy, Yugoslavia, Latonia, Lithuania, Holland, Austria and Czechoslovakia will be present. Invitations have been extended to interested organizations in various countries. A scientific program has been prepared and arrangements are being made for entertainments and excursions through various parts of France.

PRESS CONGRESS OF THE WORLD.

The Press Congress of the World will hold a meeting in Mexico City, Mexico, August 10th–14th. The program will include discussions on important problems of editors and publishers. Aside from the sessions of the Congress entertainment features are being planned by the Mexican government and the larger newspapers. Opportunities will be afforded to visit places of interest in Mexico.

HISTORY OF JAPANESE PHARMACY AND MEDICINE.

In commemoration of the 50th anniversary of its foundation, the Tokyo Imperial University is editing a history of its fifty years of existence. The history will include that of pharmacy and medicine also. The late Dr. Niew was in charge of this work which since his demise has been taken up by Dr. Saburo Takahashi, *president* of the Japan Pharmaceutical Society.

AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE.

The American Association for the Advancement of Science will hold a summer meeting in Pasadena, Calif., from June 15th to 20th. The 1932 meeting will be held in New Haven; the 1933 meeting in Chicago, and the one of 1934 in San Francisco.

Plans for the Pasadena meeting are well under way. A special round trip rate has been made from New York at $140.00 and from Chicago, $90.00. Members can obtain further information from the Permanent Secretary, Charles F. Roos, in the Smithsonian Institution Building, Washington, D. C.

See your ticket agent early for rates and routes to the Miami meeting. If he has no special rates, have him make inquiry promptly.

PROFESSIONAL STANDARDS.*

BY VICTOR NOREEN.

The average drug store is still occupied with the dual activity of professional practice and trade. In some stores the one or the other activity is ascending and the other declining. There is a see-sawing going on and indecision on the part of proprietors whether to continue the present two-fold activity or to choose the one other other for exclusive occupation. The trend toward separation has unquestionably accelerated during the last five years as evidence on the one hand by the increasing numbers of purely professional pharmaceutical stores or laboratories, and on the other by the over-commercialization of many stores to the point of almost or complete extinction of pharmaceutical practice. These signs are on the whole good and promise better things for pharmacy in due time.

Until recently the overcommercialized store enjoyed, in a large measure, the prestige attached to pharmacy. However, many of these are now losing pharmaceutical patronage because their establishments are representing, increasingly, the interests of commerce rather than of pharmacy, and because the public is finding this out and buys less and less of its pharmaceutical supplies at such stores. Reciprocally, the purely professional stores and those who make or who endeavor to make their establishments preponderantly professional are reaping the advantages of the old pharmaceutical prestige. Their business in pharmaceutical respects is naturally growing at the expense of the stores which are losing their pharmaceutical business because they are depriving their establishments of the pharmaceutical or professional atmosphere and supplanting it with the commercial.

All this is prefatory to the statement that the public gets what it wants and gets it under the most favorable circumstances. The public is realizing, in a very increasing measure, that it can get usually a much better professional service from the pharmacist who devotes all or the larger portion of his time to pharmaceutical practice.

This leads to the next observation, namely, that some establishments which are pharmaceutical in only a negligible degree, continue to sail under the colors of pharmacy as though they were real pharmacies. It is no doubt still true that they attract customers because of their adherence to pharmacy though in a greatly attenuated degree. If these establishments recognize the value of pharmaceutical prestige, how much more alert to this advantage should those stores be which are much less commercial. For example: I know of a store that still does a 60% pharmaceutical business but the appearance in the make-up of the store would hardly lead anyone to suppose this to be the case. Everything in sight of the customer creates the atmosphere of a general store rather than of a drug store. The prescription department and the good-sized laboratory for the making of many preparations are cut off by a partition which obstructs any view that might remind one of a drug store. It so happens that this store is owned and operated by a pharmacist who through long years has established himself in the confidence of many patrons. It is certain that should he remove himself from the business, there would be left only the 40% of trade now carried on in the store. If this business would emphasize its pharmaceutical aspect rather than its commercial, there is little doubt but that it would do as much commercial business as at present and much more in the pharmaceutical lines.

I, therefore, stress professional standards upon a greater number of drug stores. The letting-go or minimizing of professional standards is not only detrimental to this ancient and honored profession of ours as a whole, but militates directly against the material prosperity of individual pharmacists.

I am happy to report that this viewpoint is gaining ground everywhere and that it is conducive, in a measure at least, to better things for pharmacy.

It is taken for granted that all members of this Association know what is meant by professional standards, and so I think it unwise to take up time in defining what professional and ethical standards mean.

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* Read at the Joint Meeting of the Northwestern Branch A. PH. A. and the Scientific and Practical Section, M. S. P. A.

EDITORIAL NOTES

Editor: E. G. Eberle, 10 West Chase Street, Baltimore, Md.

Members of the Council, A. PH. A.: S. L. HILTON, *Chairman;* CHARLES H. LAWALL, *Vice-Chairman;* E. F. KELLY, *Secretary;* H. V. ARNY, A. G. DUMEZ, H. A. B. DUNNING, H. C. CHRISTENSEN, C. E. CASPARI, J. H. BEAL, W. BRUCE PHILIP, T. J. BRADLEY. *Ex-Officio Members:* H. C. CHRISTENSEN, *President;* WALTER D. ADAMS, D. B. R. JOHNSON, *Vice-Presidents;* C. W. HOLTON, *Treasurer;* E. G. EBERLE, *Editor of the Journal;* A. G. DUMEZ, *Editor of the Year Book;* C. B. JORDAN, *Chairman of the House of Delegates.*

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SEPARATION OF PLANT PIGMENTS.

The laboratory of the biological and organic division of the United States Department of Agriculture has reported on the commercial extraction of chlorophyl, carotin and xanthophyl. The reports were made by G. E. Hilbert and F. M. Schertz. The carotin is extracted with petroleum ether; chlorophyl and xanthophyl are extracted together with acetone and separated by use of certain agents. The chemists report that they have been able to break down chlorophyl.

DETERMINING ALKALOIDS.

A new method of determining alkaloids consists in treating the alkaloid, dissolved in a hydrochloric acid solution, with excess of tetrachloro-iodic acid. Alkaloids are thereby converted into the tetrachloro-iodide derivatives, which possess characteristics readily distinguishable, and thus clearly differentiate between the alkaloids. The iodine can be quantitatively separated from these tetrachloroiodides, when they are treated with potassium iodide solution acidified with acetic acid. The iodine thus separated can be determined in usual fashion. The amount of tetrachloro-iodic acid used can be determined by saturation of a concentrated hydrochloric acid solution, containing very finely pulverized iodine in suspension, by means of chlorine. —*Journal of the Chemical Society of London* through *Drug Markets.*

NARCOTICS CONFERENCE DELEGATES.

President Hoover has named the delegates from the United States to the Conference on limitation of the manufacture of narcotic drugs, to be held in Geneva beginning May 27th. The members are: John K. Caldwell, who represented the United States at the last four annual sessions of the League of Nations Opium Advisory Committee and attended the preliminary Conference on the limitation of the manufacture of narcotic drugs, held in London during October. The other members are: Commissioner Harry J. Anslinger, Dr. W. L. Treadway, chief of the Bureau of Mental Hygiene, U. S. Public Health Service, and Sanborn Young, chairman of the California State Narcotic Commission.

HERBARIUM OF THE HIMALAYAN FLORA.

An herbarium consisting of more than 1000 specimens of Himalayan flora—representing the first season's collection by Dr. Walter Koeltz, botanist of the Research Institute of the Roerich Museum, India—has been received by the Botanical Garden, New York, and is now being studied.

TREATMENT FOR MONOXIDE POISONING.

The laboratory of the Bureau of Mines, under the direction of Dr. R. R. Sayres, is conducting work in an effort to discover antidotes counteracting the effect of carbon monoxide. Studies are being made to determine whether there is permanent damage done by the poison to the brain, heart, lungs and other organs.

U. S. CIVIL SERVICE COMMISSION EXAMINATION.

The U. S. Civil Service Commission has announced an open competitive examination for Junior Microanalyst. Application for the position must be made not later than April 21, 1931. In order to take the examination the applicant should address the U. S. Civil Service Commission, Washington, D. C., or apply to any post office or customhouse in the United States.

THE INCREASING IMPORTANCE OF HOSPITALS.

We quote the following from the *Journal A. M. A.* of March 28th:

"The tenth annual compilation of statistics regarding hospital service in the United States, presented this week in *The Journal* (*A. M. A.*) brings fresh interest to a consideration of the magnitude of hospital service. Not long ago, hospital procedures were the business only of the few who worked within their walls. The change to modern methods has been so sweeping as to seem inevitable. A comparison of hospital service of ten or twenty years ago with that of to-day arouses pride in the mighty forces that have brought about such changes." . . .

"The practice of medicine is being transferred to hospitals in a continuously increasing degree. In 1909 there were in the United States 4359 reasonably acceptable hospitals; in 1930 there were 6719, a numerical increase of 2360, or 54.1 per cent. But the bed capacity of these hospitals rose during the same period from 421,065 to 955,869, a capacity increase of 534,804, or 127 per cent." . . .

"That improvements in the way of scientific equipment for the care of the sick have kept pace with the expansion in the capacity of hospitals is shown by the fact that from 1923 to 1930 the number of laboratories in hospitals increased from 3035 to 4249. During the same time the number of X-ray departments increased from 2841 to 4523. The departments of physical therapy in hospitals numbered 2091 in 1927 and 2236 in 1930. And also with the increase in the number of these adjuncts to diagnosis and treatment in hospitals has come increased demand that these departments be under the supervision of medical practitioners who are specially qualified."

Coöperation of trained pharmacists and physicians is essential for progress of the professions indicated and the service rendered by them. The regulations of pharmacy in the hospitals should not differ greatly from those conducted by individuals, firms or corporations.

PHARMACISTS IN LONDON PUBLIC INSTITUTIONS.

The London County Council has given other local authorities a very useful lead in the matter of dispenserships in the institutions under their control. It has been decided that (1) only persons registered as pharmaceutical chemists, or as chemists and druggists (pharmacists), shall be eligible for appointment as dispensers or assistant dispensers in the hospitals or district dispensaries; (2) in hospitals or other dispensaries carrying more than one assistant dispenser, an unregistered dispenser, an articled pupil or an apprentice shall be eligible for the position of second assistant, and (3) in small hospitals or institutions in which there is no registered dispenser, the medical officer of the hospital or institution shall be responsible for the dispensing.

CANCER "CURERS" AND "CURES."

Dr. J. J. Durrett, chief of drug control, Federal Food and Drug Administration, stated —in commenting upon a radio talk delivered recently by Lord Moynihan, one of the world's leading cancer specialists, and president of the Royal College of Surgeons, England, in which the British surgeon declared: "The cancer curer is still a curse in every land, and the most pathetic credulity as to his claim is shown by people who should know better." "In twenty-four years' regulatory operation of the Federal Food and Drug Act, the Administration has instituted more than seventy court actions against more than forty so-called cancer 'cures.' "

Publicity and sales of these "cancer cures" should be stopped, but there is even greater danger, if possible, in permitting fake cancer doctors to ply their calling. They may be found in nearly every large city.

A ROCKY MOUNTAIN SPOTTED FEVER TYPE IDENTIFIED IN EASTERN AND SOUTHEASTERN SECTIONS OF UNITED STATES.

According to a report recently made public by the United States Public Health Service, a disease of the Rocky Mountain spotted fever type has been identified as occurring in States in the eastern and southeastern sections of the United States. Heretofore, it

has been thought that Rocky Mountain spotted fever existed only in the western part of the United States being most prevalent in the Rocky Mountain section.

The discovery that a disease of this type is present in the eastern part of the United States is important to the general public, as well as to health authorities. Rocky Mountain spotted fever is spread by the bite of ticks, and the present evidence indicates that the type of disease just reported for the eastern States is also spread by ticks. This disease is rather severe and death has resulted in some of the cases. The disease occurring in the Rocky Mountain section is often extremely severe, with mortality running from 60 to 90 per cent.

The discovery of this disease in a section hitherto unknown is the result of laborious and extended studies by the Public Health Service, including laboratory investigations as well as studies of a number of clinical cases.

CONTROL OF SALE OF PROPRIETARY MEDICINES.

The *Oil, Paint and Drug Reporter*, of April 13th, states editorially that "suggestions for a plan of rigid control of the sale of proprietary medicines are under consideration by the Commissioner of Health of the City of New York. These suggestions were made for the municipal department of health at the invitation of the commissioner by the secretary of the council on dental therapeutics of the American Dental Association. They would, if adopted, oblige the board of health, as one of the commissioner's advisers, a physician of high standing, has declared, to rule out of the drug stores practically all patent medicines now on sale . . . and seriously interfere with the advertising matter in fully half of the newspapers and magazines sold in this city."

DE LAMAR LECTURE ON NARCOTIC ADDICTION.

Dr. George F. McCleary, deputy senior medical officer, Ministry of Health, England, delivered a De Lamar lecture on Hygiene, April 14th, at The Johns Hopkins University School of Hygiene and Public Health. The subject of the address was, "The Prevention and Cure of Narcotic Drug Addiction."

THE CHARLES E. DOHME MEMORIAL LECTURESHIP.

The Charles E. Dohme lectures were delivered April 16th to 18th, at Johns Hopkins University School of Medicine. The Memorial Lectureship was established by Mrs. Dohme in memory of her husband, the late Charles E. Dohme, a former president of the AMERICAN PHARMACEUTICAL ASSOCIATION. The lectures were given by Prof. Karl Freudenberg, Ph.D., director of the Chemical Institute of the University of Heidelberg. The subjects were: "Insulin," "Optical Activity and Configuration of Oxy- and Amino-Acids," "Recent Researches on Cellulose and Starch."

PERSONAL AND NEWS ITEMS.

Our fellow member, **Ivor Griffith,** has contributed a very interesting article to the April *Drug Topics* on how the mistakes of famous scientists have proved of benefit to humanity. He refers to Courtois in applying a strong acid to remove the scale from a vat in which he was making salts of potash; the result was the discovery of iodine. Perkins' use of the wrong reagent, seeking to make synthetic quinine, resulted in the production of aniline dyes. Dr. Ira Remsen was led to the discovery of saccharin by tasting of material from the laboratory, on his hands, while eating. Roentgen's discovery was more-or-less accidental. Kekule blundered upon his benzin structure by following a dream. Nobel blundered to his dynamite; an error of Goodyear led to his manufacture of hard rubber; etc. While these discoveries may be ascribed to errors, as a matter of fact scientific observation by the individuals named was largely responsible for the results.

At the Grand Council of Phi Delta Chi fraternity held in Columbus, **Dean Edward Spease** was presented with a beautiful watch in appreciation of five years of continuous and distinguished service in behalf of that fraternity.

The New York Pharmacist for March carried the message of the AMERICAN PHARMACEUTICAL ASSOCIATION to its readers—an appreciated evidence of service for pharmacy.

Secretary Hayman's *Bulletins* are informative and keep the membership of West Virginia Pharmaceutical Association in touch with things to happen. The Association celebrates its 25th anniversary in June.

President G. E. Heller and **Secretary A. L. I. Winne** have been planning for district meetings in Virginia and also for the State event—the Golden Anniversary of Virginia Pharmaceutical Association to be held at Virginia Beach, Cavalier Hotel, June 22nd–24th. **Chas. R. Claiborne** has been enthusing the veterans to assemble at a Luncheon during the convention.

The Catalyzer, edited by the Chemists' Club of the University of Notre Dame carries a number of interesting articles in the March number, among them: "Hydrogen-Ion Control in Pharmacy," by Karl W. Scherer; "Some Contributions of Pharmacy to Science," by M. S. Wallner and H. E. Myers.

Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, has been chosen as 1930 recipient of the Dr. Sofie A. Nordhoff-Jung prize for his outstanding work in the field of cancer. Dr. Carrel received the award at ceremonies at Georgetown University on March 28th. Ambassador von Prittwitz, of Germany, read the diploma; Ambassador Claudel, of France, was present and Dr. W. Coleman Nevils, *president* of Georgetown University, presided. The citation reads: "Dr. Carrel has added new laurels to his great achievements in surgery by expanding the method of tissue culture, and by its objective application he has vastly aided in the elucidation of fundamental questions relating to morbid growth, especially the development of malignant tumors."

On March 24th the American Institute of Chemists announced the award of its medal jointly to Andrew W. Mellon, Secretary of the Treasury, and Richard B. Mellon for distinguished service to the science and profession of chemistry. Dr. Frederick E. Breithut, *president* of the American Institute of Chemists and head of the department of chemistry at the Brooklyn College, in making the announcement, said: "The Institute medal is awarded annually for distinguished and outstanding services to the science and profession of chemistry. Mr. Andrew W. Mellon and Mr. Richard B. Mellon have contributed to the advancement of chemistry in its broadest aspects and have fostered the progress of industry by their far-seeing and unselfish efforts. Through the agency of the Mellon Institute of Industrial Research they have been leaders in the great forward march of the American chemical industry. This medal is awarded annually and usually to some one outside the chemical profession itself. In 1929, the award was made to Mr. and Mrs. Francis P. Garvan; in 1930, to Mr. George Eastman."

Thurston Merrell of Cincinnati, will read a paper on "Salesmen's Expense Accounts" before the Sales and Advertising Committee of the American Drug Manufacturers' Association in convention at The Cavalier, Virginia Beach, Va., May 4th to 7th.

Dr. Lewis N. Brown, associate professor of Pharmacy at the College of Pharmacy of the City of New York, has been elected member of the Board of Education of the Borough of East Rutherford, N. J. (Sympathy is extended to Dr. Brown, because of the death of his wife, who died March 14th.)

Harry E. Bischoff has prepared "A Pocket Manual" describing preparations available in the dispensary of North Hudson Hospital, Weehawken, N. J., with which he is connected. Mr. Bischoff was for ten years a member of the New Jersey Board of Pharmacy and for a time, its president. The book is divided into five parts: "Medical Terms with Drugs and Preparations and Their Action," "Types of Medication," "Official Drugs and Chemicals," "Official Names of Proprietary Drugs and Formulas," "Vehicles and Solvents." Drugs and preparations of the U. S. P. and N. F. are well represented, and the author has rendered a valuable service. We congratulate Pharmacist Bischoff on his work.

The current issue of the *Pharmaceutical Journal*, of New Zealand, has several pages of the damage done by the February earthquake. Every pharmacy in Napier was destroyed; Hastings, Dannevirke and Wellington suffered greatly but not to the extent of their sister city. The loss of property was tremendous and many lost their lives in the disaster. A call was at once sent out by the New Zealand Pharmaceutical Society and while the responses were comparatively generous a long time will be required before the evidences of loss are removed.

In acknowledging the certificate as life member of the AMERICAN PHARMACEUTICAL ASSOCIATION, W. A. Hover expresses his appreciation of the work of the ASSOCIATION. He remarks that "the year 1931 is his 53rd year of continuous activity in the retail and wholesale drug business, under one owner and management"—a record of service. Members who attended the Denver meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION will recall with a great deal of pleasure the interest of Mr. Hover in the entertaining of the membership.

We are in receipt of a reprint of an address before the Atheneum Club of the University of Florida, by **Dr. P. A. Foote** on "Some Features of Progress of Medicine in Fifty Years—from 1880 to 1930."

Dr. Charles H. Halliday of the State Department of Health of Maryland has been appointed Commissioner of Health for the

Virgin Islands. Dr. Halliday was engaged in public health work in Philippine Islands and after the World War spent a year and a half in typhus fever control work, in Poland.

The JOURNAL acknowledges a reprint from *La Farmacia* of an article by our fellow member, **Dr. G. G. Colin,** on "The Mission of Professional Pharmacy."

Hunter Brothers have opened up a new prescription drug store in Kansas City. The entire central portion of this store is given over to space for the prescriptions' department.

The *Journal of Chemical Education* for March has a most interesting article on "The Development of Pharmaceutical Chemistry in Maryland," by **Dr. A. G. DuMez,** in which "the history of the development of pharmaceutical chemistry in Maryland is traced in more or less chronological sequence during the past century and a half. The ways in which the retail pharmacies, the School of Pharmacy, the drug industries, and certain of the chemical industries have contributed to Maryland's present position in pharmaceutical chemistry are briefly summarized." The article is illustrated and covers about twenty pages.

In the same issue of the publication above referred to is an article by **C. Jeleff Carr** under the caption of "Introducing an Old Book to New Friends." This is a résumé of the early history of the United States Pharmacopœia and of a number of those who played an important part in the preparation of this standard. The article is illustrated by a half-tone of Dr. Lyman Spalding and a reduced reproduction of two pages of the first edition of the United States Pharmacopœia, one having the article in Latin and the other in English translation.

The Bulletin of the Society for the History of Pharmacy, France, is continuing its interesting and valuable articles on historical pharmacies, pharmacists of the early periods and illustrations of a number of the old pharmacies.

The *Texas Druggist* for March contains a list of Texas drug stores and also a roster of the members of Texas Pharmaceutical Association, which makes that issue a very convenient reference. It also contains a number of historical articles dealing with the early drug stores of Texas. There is also a sketch of the chairman of the House of Delegates, C. B. Jordan, together with a half-tone of the latter and a picture of the new pharmacy building at Purdue University. A number of pages are given over to the activities of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The following is the closing paragraph of an article in the *Bulletin of the American Hospital Association* by Dr. M. S. Dooley, member of the staff, University Hospital of the Good Shepherd, College of Medicine, Syracuse University.

"A final plea is for minimum standards for pharmacies in the rating of approved hospitals. If a committee such as ours is able to make only a little progress, backed by a half dozen years of intensive publicity, with all concerned desiring it, one wonders how long it would take to effect satisfactory reforms if left to the average individual institution. One wonders how long it would have taken hospitals to reach their present standard in other respects had it not been for the well-directed aggressive steps taken by such organizations as the American College of Surgeons, the American Hospital Association, and the American Medical Association, whose influence has been the magic touch."

It is to be hoped that the pharmacies of hospitals will be standardized and pharmacists given a standing on the staff, which will make for greater efficiency in the interest of those served by hospitals. Dr. Dooley's commendation deserves serious consideration by hospital directorates.

The JOURNAL has received a copy of the *University of the Philippines' Association Bulletin,* which contains an article on "*Lansium domesticum, Correa*—I.—A study of the Chemistry of the Rind and the Pharmacodynamics of the Resin Obtained Therefrom," by Dr. Patrocinio Valenzuela.

THE FEDERAL TRADE COMMISSION REVIEWS RULES OF BUSINESS.

The Federal Trade Commission announced on March 30th, that the task of reviewing of the rules of business practice adopted by about eighty industries had been completed. The rules for each industry will be announced separately in the near future, after opportunity has been given to the various organizations for giving expression relative to them. In the classification, Group 1 relates to practices regarded as unfair, and Group 2, to practices in doing business that the industries concerned are opposed to because of economic principles or ethics.

SERUMS AND MEDICINES FOR NICARAGUA.

American planes carried serums and other medicinal agents to stricken Managua, Nica-

ragua. Among those who took part in this mission were Major Roy S. Geiger, one of the foremost fliers in France during the World War and First Lieutenant Christian F. Schilt, who was awarded a medal for air services against the insurgents in Nicaragua.

OBITUARY.

GEORGE EDWARD KURTZ.

Professional pharmacy and our local Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION suffered one of its greatest losses in the death of George Edward Kurtz, who died of heart disease at his home in Lakewood on the 28th day of January.

Mr. Kurtz was a graduate of the School of Pharmacy of Western Reserve University in the class of 1914 and always kept his ideal of professional pharmacy before him.

About twelve years ago he opened the George E. Kurtz Drug Company, at 6605 Detroit Avenue, at which place he conducted a professional Pharmacy. The front of his store contained no counters and merely a waiting room for patients and a cashier's desk.

He was a young man, dying at the age of thirty-seven years, and just upon the threshold of seeing his work crowned with real success. He had recently moved his store to a bigger and better location and taken into partnership with him Mr. John P. Schneider of Berea. It is fortunate for pharmacy that Mr. Kurtz looked into the future enough that his store will continue and will be a monument to his industry and high ideals.

He is survived by his wife, Mrs. Lillian L. Kurtz, whom he married in 1915, and four children, Betty Jane, Ann, Richard and George Edward, Jr.—F. J. B.

FREDERICK KOLLIKER.

Frederick Kolliker, member of the AMERICAN PHARMACEUTICAL ASSOCIATION, and veteran pharmacist of Sacramento, Calif., died March 5th, at Sutter Hospital, following a brief illness. The deceased was born in Glarus, Switzerland, September 26, 1853, and had been in the drug business in Sacramento for 52 years. He married Miss Minnie Young of Santa Rosa, Calif., April 5, 1885; Mrs. Kolliker died several years ago.

Mr. Kolliker was a veteran of the Knights of Pythias and of the Masonic bodies, holding membership for nearly 50 years in both organizations; the funeral services were held under the auspices of the latter. He was a member of the Sacramento Helvetia Society.

JOSEPH LEYDEN WHITE.

Joseph Leyden White, member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1909, editor of the *American Paint and Oil Dealer*, and managing editor of the *American Painter and Decorator*, St. Louis, died suddenly on March 10th, aged 56 years.

Mr. White was a native of Chicago where he received his early education and, thereafter, entered the employ of a Chicago wholesale drug house, in 1891. He was instrumental in the organization of the National Association of Retail Druggists, in 1898 and before that time had assisted in launching the Worcester plan of price protection.

Mr. White was a frequent contributor to drug publications, and for a time was the Washington representative of the N. A. R. D. For a time he was publicity director for the Associated Pharmacists.

In 1921 he became sales and advertising manager for B. O. and G. C. Wilson of Boston, and, in 1924, he became a member of the editorial staff of the *American Paint and Oil Dealer*.

Mr. White is survived by his widow and a son, J. Leyden White, Jr.

Dr. Walter M. Cross, inventor of the Cross "cracking process" for the production of gasoline from crude oil, died March 24th at Kansas City, aged 53 years. He was a former chemist of Kansas City and eminently successful in the enforcement of food regulations.

Philip O. Schleussner, *first vice-president* of Roessler & Hasslacher Chemical Co., N. Y., an active figure in the drug and chemical industry for more than a quarter of a century, died March 21st at his home in Stamford, Conn. Mr. Schleussner was born in Brooklyn, N. Y., September 6, 1878. He is survived by his widow, a daughter and a son.

R. W. Kindel, pioneer Texas druggist, died at his home in Weatherford. He had been engaged in the drug business in Texas since 1868. He was, at one time, the owner of the only castor oil mill west of the Mississippi.

The widow of Sir William Glyn-Jones died at her home in London, on March 9th, aged 65 years. American pharmacists remember Sir

William's visit to the United States, accompanied by his wife and daughter, Katherine. The deceased gave assistance to the work of her husband in early years and, later, showed a very deep interest in his efforts. Sympathy is expressed to the bereaved.

SOCIETIES AND COLLEGES.

SECTION ON COMMERCIAL INTERESTS A. PH. A.

The Section on Commercial Interests of the AMERICAN PHARMACEUTICAL ASSOCIATION hopes to have an outstanding program this year. You can assist by preparing a paper giving your experiences in the drug business, the proper handling of the prescription department, the conduct of other divisions, your methods of buying, selling and accounting. Select your topic and mail the title of your paper to Secretary Leon Monell, 332 Lisbon Ave., Buffalo, N. Y.

NEW YORK PHYSICIAN-PHARMACIST MEETING.

The following circular letter was addressed to pharmacists of New York City and vicinity:

"At the New York Academy of Medicine, Fifth Avenue and 103rd St., on Monday, April 13th, at 8:15 P.M., a Physician-Pharmacist Meeting for the purpose of discussing problems of mutual interest will be held under the auspices of the Academy of Pharmacy and the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION.

"From the physicians' standpoint, Dr. Horatio C. Wood, Jr., editor of the 'United States Dispensatory' and professor of Materia Medica at the University of Pennsylvania and the Philadelphia College of Pharmacy and Science, will present a paper entitled 'What the Modern Physician Should Expect of the Modern Pharmacist.' This will be discussed by Dr. M. O. Magid, President of the Bronx County Alliance, Dr. Samuel J. Kopetzky, Editor of the New York Medical Week and Dr. Howard Lilienthal of Mount Sinai Hospital.

"For the pharmacists, Dr. H. V. Arny, dean of the College of Pharmacy, Columbia University, will address the meeting, taking as his topic 'The Physician and the Pharmacist as Coworkers.' His paper will be discussed by Robert R. Gerstner, retail pharmacist and Past-President of the New York Branch of the A. PH. A.; J. Leon Lascoff, retail pharmacist and President of the New York State Board of Pharmacy and Dr. Jacob Diner, dean of the College of Pharmacy, Fordham University.

"Secretary Charles Heimerzheim, of the Kings County Pharmaceutical Society, has been invited to speak on 'How Physicians Respond to U. S. P. and N. F. Propaganda.' His talk will be based upon an experience gained in over twenty years of this work.

"Let us show the physicians of Greater New York that pharmacists are ready to turn out for a joint meeting of this kind in good numbers. Try to bring a neighborhood physician with you."

ROBERT P. FISCHELIS, *President.* HERBERT C. KASSNER, *Secretary.*

The New York Academy has elected the following officers: Robert S. Lehman, *President* for two years; Dr. Curt P. Wimmer, *First Vice-President* for three years; F. C. A. Schaefer, *Treasurer* for one year; Nicholas S. Gesoalde, *Secretary* for one year and John Scavo, *Trustee* for five years. Dr. Jacob Diner, who has been president of the Academy since its inception in 1923, declined to accept the presidency again.

A RESOLUTION OF COÖPERATION.

Our fellow member Lee S. Coy introduced the following resolution at the recent Iowa Pharmaceutical Association meeting. The resolution originated with the Cedar Rapids Retail Druggists Association and was presented by President Glenn K. Barge and Secretary Lee S. Coy. The Iowa Association adopted the resolution with favorable comment; it follows:

WHEREAS, no provision has been made in the past for a booth at the Northwest Drug Show for the use of the AMERICAN PHARMACEUTICAL ASSOCIATION and the National Association of Retail Druggists, and,

WHEREAS, membership in these two great organizations is a privilege to all registered pharmacists, and,

WHEREAS, many pharmacists would be glad to support these two organizations if given a proper idea of the great legislative and professional work they are doing for the pharmacists of the great Northwest: therefore,

Be It Resolved, that the Iowa Pharmaceutical Association provide a booth at the 1932 Northwest Drug Show for the joint use of the AMERI-

CAN PHARMACEUTICAL ASSOCIATION and the National Association of Retail Druggists, and invite them to send proper displays of their work and material whereby druggists of the Northwest may be shown the advisability of joining these two great organizations.

Be It Further Resolved, that the Cedar Rapids Retail Druggists' Association in meeting assembled this 27th day of January endorse the above resolution and suggest its adoption at the Iowa Pharmaceutical Association convention to be held in Des Moines February 4, 5 and 6, 1931.

The 1932 Northwest Drug Show will be held in Cedar Rapids. Mr. Coy suggests consideration of the resolution at the Miami A. PH. A. meeting. It certainly exemplifies a fine spirit, the growth of which should make for coördinated efforts.

MARYLAND PHARMACEUTICAL ASSOCIATION.

Maryland Association has learned the value of District meetings, in bringing the message of the State Association to its members and strengthening acquaintance by these visits—the next visit will be made to Easton. President Williams is not only carrying the message of show globes but of coöperation within associations and among pharmacists. Quite a number of Baltimoreans will accompany him to Easton on April 20th. The meeting will be under the supervision of Chairman W. B. Spire of the Committee on Commercial Interests. The National Drug Store Survey Committee is receiving fine support from the Maryland Committee of which R. E. Lee Williamson is the State chairman.

AMERICAN CHEMICAL SOCIETY.

The *Oil, Paint and Drug Reporter*, of April 6th, states that "dietary data, the need for a better knowledge of industrial needs on the part of chemical educators, and the beneficient possibilities of a man-made atmosphere were some of the topics which indicate the breadth of the scope of discussions at the eighty-first meeting of the American Chemical Society held in Indianapolis, March 30th to April 3rd. The topics mentioned were considered in joint and general sessions. In addition, the sessions of the various divisions of the society covered an almost unlimited scope in their respective fields.

"The giving of testimonials by chemists for use in advertising was disapproved by the Society in a resolution which set forth that:

"The American Chemical Society in its policy of encouraging the distribution of scientific knowledge differentiates clearly between the publishing of scientific information, or technical data, on the one hand and testimonials, or uncritical or inadequate statements, on the other.

"The American Chemical Society disapproves of chemists lending their name or support to the testimonial form of advertising, and condemns any reference to the American Chemical Society in published statements of the testimonial type and, disapproves of statements which impose on the public's confidence in the chemical profession."

NEW YORK BOARD OF TRADE TO STUDY RETAIL PRICING.

At a dinner-meeting at the Lotos Club, Wednesday, March 18th, the Special Committee established by the New York Board of Trade to study Retail Pricing approved of the suggestion that Professor Edwin A. R. Seligman, the internationally-known economist of Columbia University, and his colleague, Dr. Robert A. Love, of C. C. N. Y., be asked to investigate the economics of price cutting and price maintenance. The dinner was tendered by the chairman of the Committee, Edward Plaut.

OFFICERS OF NEW YORK DRUG AND AND CHEMICAL CLUB.

At its recent meeting for purposes of organization, the new board of governors of the Drug and Chemical Club, of New York City, elected the following officers: *President*, Frederick H. Leonhardt; *Vice-Presidents*, A. M. Murray; *Treasurer*, H. H. Slutia; *Secretary*, W. O. Badger.

THE U. S. CHAMBER OF COMMERCE.

The 19th annual meeting of the U. S. Chamber of Commerce will be held in Atlantic City, April 20th to May 1st. The Atlantic City meeting will constitute an economic or business approach as distinguished from the political survey approach to the overshadowing problem of industrial depression and unemployment. Prizes will be presented to cities showing progress in fire prevention. Lakewood, Ohio, has been awarded a grand prize. Other cities receiving honors are Philadelphia, Rochester, New York, Grand Rapids, Mishawaka, Ind., and Albany, Ga. Interesting papers and addresses have been included in the program.

APRIL AND MAY ASSOCIATION MEETINGS.

American Drug Manufacturers' Association, at the Cavalier, Virginia Beach, Va.—May 4–7, 1931.

American Pharmaceutical Manufacturers' Association, French Lick Springs Hotel, Indiana—week of May 25th.

The Proprietary Association, Hotel Biltmore, New York—May 19th–20th.

District of Columbia, Raleigh Hotel, Washington, D. C.—April 10th.

Louisiana Pharmaceutical Association, at Lafayette—May 12th–13th.

New Mexico Pharmaceutical Association, at Albuquerque—May 20th–21st.

Oklahoma Pharmaceutical Association, at Clinton—April 21st–22nd.

KANSAS PHARMACEUTICAL ASSOCIATION.

Kansas Pharmaceutical Association held its annual session at Topeka, April 14th to 16th. The following are the officers for this year: *President,* Charles M. McCaughan, Eldorado; *First Vice-President,* O. A. Spence, Salina; *Second Vice-President,* Joe Demain, Macksville; *Secretary-Manager,* Roy C. Reese, 824 Kansas Ave., Topeka; *Treasurer,* Walter Varnum, Lawrence.

OFFICERS OF IOWA PHARMACEUTICAL ASSOCIATION.

President, John Heerema, Pella; *First Vice-President,* J. S. Veenker, Northwood; *Second Vice-President,* Olen Hill, Clinton; *Treasurer,* J. M. Lindley, Winfield; *Secretary,* J. W. Slocum, Indianola.

OFFICERS MINNESOTA PHARMACEUTICAL ASSOCIATION.

President, Joseph Vadheim, Tyler; *First Vice-President,* Harry Iverson, St. Paul; *Second Vice-President,* George H. Countryman, Fergus Falls; *Third Vice-President,* Harriet D. James, Two Harbors; *Secretary,* Gustav Bachman, Minneapolis; *Treasurer,* H. Martin Johnson, St. Paul; *Members of Executive Committee,* N. Vere Sanders, Albert Lea.

LOUISIANA PHARMACEUTICAL ASSOCIATION.

The Louisiana Pharmaceutical Association will meet at Lafayette, May 12th–13th. Lafayette is known through "Evangeline," immortalized by Longfellow. Caldwell is in the heart of the Teche country, located on the old Spanish Trail, one of the storied regions of this section of the country. The officers of the Association are: *President,* C. R. Caldwell, Shreveport; *First Vice-President,* J. Marion Legendre, New Orleans; *Second Vice-President,* Paul C. Eckels, Crowley; *Third Vice-President,* J. A. Baucum, Haynesville; *Fourth Vice-President,* John W. Cullens, Monroe; *Fifth Vice-President,* Lester Dunlap, Baton Rouge; *Sixth Vice-President,* Leo C. Siess, Alexandria; *Secretary,* John E. Scott, New Orleans; *Treasurer,* Adam Wirth, New Orleans.

OKLAHOMA PHARMACEUTICAL ASSOCIATION.

The Oklahoma Pharmaceutical Association will meet in Calmez Hotel, Clinton, April 21st–22nd. The officers are: *President,* Albert Eaton, Weatherford; *Vice-President,* C. V. Newell, Oklahoma City; C. V. Nichols, Anadarko; J. W. Montfort, Alva; *Secretary,* David F. McLemore; *Treasurer,* J. P. Brawley, Oklahoma City. Place of Meeting, Clinton. Time, April 21–22, 1931.

Among the speakers are: Secretary David F. McLemore, who is Mayor of Britton; Roy C. Reese, Topeka, Kans., secretary of Kansas Pharmaceutical Association; Julius Riemenschneider, president of the National Association of Retail Druggists.

DELAWARE PHARMACISTS' GUILD PUBLICITY.

A campaign to educate the public to the value of pharmacy to public health and safety has been undertaken by the pharmacists of Delaware. The campaign is being fostered by the Pharmacists' Guild of America. Forty registered pharmacists are enlisted in the movement. These men represent all sections of the State. Full-page advertisements will appear regularly in *The Every Evening,* a modern metropolitan daily. This advertising will continue throughout the year. In addition, each store coöperating will tie up closely with the newspaper advertising by means of window cards and interior displays. The whole purpose of the Pharmacist's Guild movement is to present the drug store in the proper light before the public. It is a movement devoted to a high purpose, and should be supported by the profession in a whole-hearted way.—*The Maryland Pharmacist.*

ITALIAN PHARMACISTS RAISE $5000.

The "Italian night" benefit banquet, given March 1st at the Hotel St. George, Brooklyn, in honor of the thirty-third anniversary of the Italian Pharmaceutical Association of New York, was attended by more than 1000 members and guests. Approximately $5000 was raised, all of which will be used to relieve unemployment distress among members.

KANSAS DRUG SHOW.

The fifty-second annual convention and tenth annual drug show of the Kansas Pharmaceutical Association will be held in Topeka on April 15th–17th. The meetings and show will be held in the Masonic temple. The membership of the Association comprises over ninety per cent of the Kansas retail druggists and much interest has been shown in association activities.

ARIZONA PHARMACEUTICAL ASSOCIATION.

Arizona Pharmaceutical Association is taking a mail vote on the time and place of meeting for this year's convention. Secretary Arthur Lee Phelps also announced that the 1932 meeting will probably be held at El Paso and Juarez, joining with the Texas and New Mexico associations.

The Arizona Board of Pharmacy has issued a bulletin giving general information regarding the laws and requirements of the Arizona State Board of Pharmacy.

CALIFORNIA PHARMACEUTICAL ASSOCIATION.

California Pharmaceutical Association will meet at Monterey, May 25th–28th. A program of interest has been prepared and so that there may be free discussion one of the sessions will be a closed meeting for retail druggists only. As the San Francisco survey has about been completed, it is reasonable to assume that there will be a report on that important subject. It is stated that the survey will bring about better relations between the retailer, manufacturer and distributor. The entertainment features of the program have been stressed in the announcements.

GEORGIA PHARMACEUTICAL ASSOCIATION.

H. L. Chichester is the *convention chairman* of Georgia Pharmaceutical Association which meets in Macon, April 22nd–23rd. Tom Marshall of Atlanta is *president* of the Association, and Dr. R. C. Wilson, dean of the College of Pharmacy, of the University of Georgia, is the *secretary*. Among the speakers of the meeting will be Dr. R. L. Swain, of Baltimore, and President H. C. Christensen of the A. Ph. A. The entertainment program includes a banquet, dance and luncheon.

TENNESSEE PHARMACEUTICAL ASSOCIATION.

Memphis druggists are making preparations for the entertainment of Tennessee Pharmaceutical Association July 21st–23rd. Edward V. Sheely—postmaster of Memphis, and druggist—has been selected as general chairman of the Committee on Arrangements.

C. R. Heinrich, of Knoxville, is *president* of the State Association, John S. Sheehan of Memphis is a *first vice-president*, and W. P. Winter of Nashville is the *secretary*.

A meeting for making preliminary arrangements was held on March 14th, at which time committees were appointed. President Charles E. Wilson of the Mississippi Pharmaceutical Association was an invited guest.

The chairmen of the committees are as follows: *Reception*, R. P. Ferrell; *Refreshments*, Milton Paris; *Registration*, John S. Sheehan; *Finance*, Wylie Robinson; *Transportation*, W. C. Dirmeyer; *Entertainment*, Virgil Haley; *Program*, Dr. A. R. Bliss, Jr.; *Publicity*, Seale B. Johnson; *Drug Show*, George Lamar.

TEXAS PHARMACEUTICAL ASSOCIATION.

Dallas County Pharmaceutical Association elected C. T. Bishop as *President*, Vernon Allen, *Vice-President*, and W. E. Parker, *Secretary and Treasurer*. The Association is arranging for the State convention to be held at Baker Hotel, June 15th–18th, at which time an attendance of about 2500 is expected.

El Paso pharmacists are making an effort to secure the 1932 convention of Texas Pharmaceutical Association, when it is contemplated to have a tri-state meeting, including Texas, Arizona and New Mexico.

NEW MEXICO DRUGGISTS TO MEET AT ALBUQUERQUE.

The following notice has been sent out by President Wm. H. McAdoo and Secretary H. I. Braden, both of Carlsbad.

"Get ready to go to the Third Annual New Mexico Pharmaceutical Convention. The

place is Albuquerque and the time is May 20th and 21st.

"Many benefits are derived from these conventions in a business way and we can promise you also that Albuquerque will have plenty of entertainment. If you do not know the Albuquerque druggists, you should. They are live wires and will put the convention over in great shape. We want to have the largest and best convention we have ever had and we need your presence to make it so. Make a note of this date in your "Want Book," for you want to go.

"It was impossible to arrange the tri-state meeting at Albuquerque for this year, but we hope we will be able to arrange it for 1932."

CENSUS OF DRUG SALESMEN.

Members of the National Wholesale Druggists' Association employ 2841 salesmen of all kinds, or one salesman for every 21.5 of the 61,033 retail drug stores in the country, according to a pamphlet covering a census of wholesale drug salesmen, issued by the Association.

OFFICERS OF THE JAPANESE PHARMACEUTICAL SOCIETY.

The following are the officers of the Japanese Pharmaceutical Society: *President*, Dr. Keizo Ikeguchi; *Vice-President*, Dr. Kintaro Ueno; *Secretaries*, Dr. Yasuhiko Asahina, Dr. Katsuzaemon Keimatsu, Dr. Kotaro Nishizaki and Dr. Heizaburo Kondo; *Councilors*, Kenzo Hattori, Toyota Nabeshima, Bisui Hosol, Toyosaburo Nozoe, Shuhei Isono, Akira Ogata, Yutaka Kinugasa, Bunta Taguchi, Senjiro Tanii, Manzo Nakao, Matajiro Watanabe, Yoshio Sugii and Naoichi Fujita.

UNIVERSITY OF PORTO RICO.

Dr. Carlos E. Chardon has been appointed Chancellor of the University of Porto Rico. Installation will take place during the annual commencement exercises in May and it is expected that representatives of several American universities will be present.

ALUMNI OF ST. LOUIS COLLEGE OF PHARMACY CELEBRATED ANNIVERSARY.

The Alumni of the class of 1888 of the St. Louis College of Pharmacy will have a get-together meeting this year. Among the number are Dr. Louis H. Behrens, Fred C. Meyer, Theodore Hagenow, William Illhardt, Henry Brenner.

OFFICERS OF THE NEW YORK COLLEGE OF PHARMACY.

The following officers and members of the Board of Trustees of New York College of Pharmacy were elected at the annual meeting: *President*, Dr. Nicholas Murray Butler; *Honorary President*, Dr. William Jay Schieffelin; *Vice-Presidents*, Dr. Henry C. Lovis, Edward Plaut and V. Chapin Daggett; *Treasurer*, Clarence O. Bigelow; *Secretary*, Charles W. Holton; *Assistant Secretary*, Arthur J. Bauer; *Trustees*, to serve three years, William W. Conley, Adolph Henning, J. Leon Lascoff, S. Barksdale Penick and Richard H. Timmermann.

GRADUATE SCHOLARSHIPS, UNIVERSITY OF FLORIDA.

Twenty graduate scholarships of $250 each are expected to be available at the University of Florida for the coming year, for work toward a master's degree in any department of the University which offers such work. Persons who have graduated from a four-year course in pharmacy and who wish to work for the degree of M.S. or Ph.D. (in Pharmacy) are eligible to apply for a scholarship. If interested, write to Dr. W. J. Husa, Dept. of Pharmacy, University of Florida, Gainesville, Fla.

DUQUESNE SCHOOL OF PHARMACY.

Friday evening, April 17th, was celebrated as Pharmacy Night at Duquesne University School of Pharmacy. Students were at work in the several laboratories demonstrating how the modern pharmacist is trained for his work. Entertainment was provided in the Campus Theatre and souvenirs were given to all ladies who attended. For the past four years Pharmacy Night has been attracting visitors in steadily increasing numbers, some 3000 being present in 1930. Exhibits in pharmacy, chemistry, bacteriology, physics, materia medica, botany and other sciences are shown. Exhibits and demonstrations are varied each year and each student is shown at a different task.

Preparations are being made for the ceremonies in connection with the inauguration of the Very Reverend Jeremiah Joseph Callahan, as president of Duquesne University, on April 30th.

The 1931 A. Ph. A. meeting will be held in Miami, Fla., during the week of July 27th.

LEGAL AND LEGISLATIVE.

STATE BOARD OF HEALING ARTS IN PENNSYLVANIA.

A bill has been introduced by Dr. Paul Correll in the Pennsylvania Legislature, to be known as the State Board of Healing Arts. Under the provisions of the measures, the single board, comprising eleven members, would have charge of the licensing and regulation of homeopathic, allopathic, neuropathic and osteopathic physicians and chiropractors, midwives and nurses. Dentists, optometrists and pharmacists, however, are excluded from the provisions of the measures.

TENNESSEE PHARMACY DECISION.

In a decision of vital importance to the retail drug trade, the Tennessee State Supreme Court has reversed the conviction of Tate L. Ernest, arraigned in the Knox County Criminal Court on a charge of violating the 1919 pharmacy law. The court held that a drug store can operate in the absence of a registered pharmacist provided no poisons are sold or prescriptions compounded.

STATE LEGISLATION.

Arizona bill, H. 203, proposes a new pharmacy practice act. Physicians, apparently, are prohibited from dispensing drugs and medicines and may administer them only in emergencies.

New Mexico bill, S. 94, proposes a new act to regulate the manufacture, possession, use, control and disposal of narcotic drugs.

Oklahoma bill, S. 127, amends the narcotic act, proposes to include in the list of those substances classed as narcotics "marijuana, cannabis, its preparations or derivatives."

New York bill, A. 1723, proposes to make it a misdemeanor to broadcast by radio any speech or remarks relating to medicine or using medical terms, or diagnosing any disease or ailment, or prescribing or recommending any form of medical or surgical cure, or any form of diet, unless the speaker is a duly licensed physician.

House bill No. 149 of the Maryland Legislature has become law. Section 240 permits the sale by general merchants of commonly used household or domestic remedies, in original, unopened packages, *or farm remedies or ingredients for spraying solutions*, in bulk or otherwise, provided the said household or domestic remedies are clearly labeled with the ordinary name of the article or articles contained therein and the name of the manufacturer or distributor thereof, *or the sale by such general merchants of doses of household or domestic remedies to be consumed upon the premises.*

House bill No. 150, which was passed by both houses, discontinues the registration of *assistant pharmacists.*

"Pharmacy," "pharmacist," "drug store," "druggist," are clearly defined in the Maryland pharmacy law.

NORTH CAROLINA SALES TAX.

Governor Gardner, speaking relative to the Sales Tax, said in part:

"Any tax that we add to sales within the State helps to turn the scale against business in North Carolina and in favor of business outside of North Carolina. I cannot favor any system of taxation that imposes this additional burden on the retail merchants of North Carolina, and that penalizes business within and encourages business without the State.

"As to its practicability: If the sales tax were not fundamentally objectionable and unsound in principle, it would still be impractical for use in any large way in a program of State taxation, because no State can police its borders against interstate commerce.

"The same reasons that condemn a general sales tax have their application to the selection of articles of common use among the whole body of citizenship of the State, and the designation of such articles as luxuries, and the imposition of extreme rates of tax upon the retail sales of such articles.

"This is but a little more ingenious method of imposing taxes to relieve wealth, and without regard to ability of those who are taxed to pay the tax.

"It seems to me a narrow comprehension of the subject to designate such articles as luxuries. The use of such articles recognizes no rank of nobility or fortune. Their use is as common among the poorest as among the wealthiest classes, and a 20 per cent tax upon those who can ill afford to pay it as is a small percentage tax upon general sales.

"It is contrary to my conception of a fair tax in that it is a perversion of the doctrine of ability to pay. In the last analysis, it is not paid by the producer of the article taxed but is passed on to the consumer and is in fact a tax on poverty."

BOOK NOTICES AND REVIEWS.

Die Riechstoffe und ihre Derivate, Die Aldehyde, "Aromatic Bodies and Their Derivatives, The Aldehydes," Volume I, Parts Three and Four, 311 and 344 pages, respectively, edited by DIRECTOR ALFRED WAGNER. A. Hartleben's Verlag, Wien and Leipzig, 1930 and 1931.

These two parts complete the reference book on aldehydes edited by Director Alfred Wagner with the assistance of Drs. M. Burger and F. Elze. Part Three includes a discussion of aromatic oxyaldehydes with saturated side chains, bivalent oxyaldehydes, the ethers of oxyaldehydes with saturated and unsaturated side chains and the aroxylaldehydes. The work is most thorough and comprehensive and the full value of it can only be appreciated by the highly trained chemical specialist in the domain of perfume chemistry. The treatment of aromatic oxaldehydes with saturated side chains covers 104 pages. The next eleven pages are devoted to para-oxybenzaldehyde, succeeded by a discussion of methoxybenzaldehyde. Following the chemistry and description of anisaldehyde, covering 30 pages of text, there is a minute discussion of oxyphenylacetaldehydes, homoanisaldehyde, oxy-ortho-toluylaldehyde, homosalicylaldehydes of various kinds, para-methoxyhydrocinnamic aldehydes with their derivatives, oxynaphthaldehyde, oxybutylbenzaldehyde, cinnamic isobutylaldehyde and other complicated related compounds. After the section on aromatic monoxyaldehydes with saturated side chains comes the treatment of bivalent oxyaldehydes such as protocatechualdehyde, resorcylaldehyde, gentisinaldehyde, vanillin, piperonal, homovanillin, homopiperonal, isovanillin, benzoylisovanillin, methylvanillin, safrovanillin, everninaldehyde, asarylaldehyde, syringaaldehyde, myristicinaldehyde and apiolaldehyde. The third section is devoted to ethers of the aromatic oxyaldehydes with saturated side chains; the fourth section deals with ethers of aromatic oxyaldehydes with unsaturated side chains; and, finally, the last part of the book concerns itself with aroxylaldehydes such as cresoxyacetaldehyde, xylenoxyacetaldehyde, etc. Vanillin, on account of its enormous importance in perfume chemistry, is treated with the greatest care and occupies 84 pages of the book. Piperonal is also described at great length.

The method of treatment in Part Three is very much like that of the previous section. In case of all the more important drugs, the author begins with an historical chapter. After discussing the constitution of the compound and its occurrence in nature, the writer passes to the method of preparation. The methods of preparation having been discussed at length, the physical characteristics and the chemical properties of the compound are successively described. Following these there is a complete description of various derivatives and methods of detecting and identifying them. One of the most valuable features of various chapters throughout the work are the numerous and very enlightening tables, which show the relation in structure as well as the lines of synthesis of every important compound to its numerous derivatives. Practically every page is replete with an exhaustive bibliography from the earliest and most recent publications on the subjects discussed. Both print and paper of this work are exceptionally good.

Part Four completes the work on aldehydes and is of an extraordinary character. It consists for the most part of an index and abstracts of patents in connection with aldehydes registered in practically every country of the world. Each patent is described in detail and should prove of immense value to those interested in this particular branch of chemistry. The patent section comprises about two hundred pages. The entire volume is concluded by two indices of all the material treated in the four parts. The first is a register of authors and the second, an index of the contents.—DAVID I. MACHT.

PUBLICATIONS RECEIVED.

"Contributions to the Anatomy of Leaves of Drug Plants Used in Pharmacy of the Scrophulariaceæ"—a thesis submitted, for the doctors degree, to the Philosophical Faculty of the University of Basel by Werner Spoerri, pharmacist of Einsiedeln.

"Contribution to the History of Members of the Solanaceæ"—a thesis submitted to the Philosophical Faculty of the University of Basel for the doctor's degree, by pharmacist Emil Gerhard, of Basel.

Reprint from the Institute of Botany, Hamburg on "Investigations of Foods," by Drs. A. Bömer, A. Juckenack and J. König.

Reprint from *Pharmacia* of an article by Prof. R. Wallner on "The Development of Pharmacy and the Drug Business in Esthonia."

A review on "Jake Paralysis" by L. A. Turley, H. A. Shoemaker and D. T. Bowden a study by members of the faculty of the University of Oklahoma.